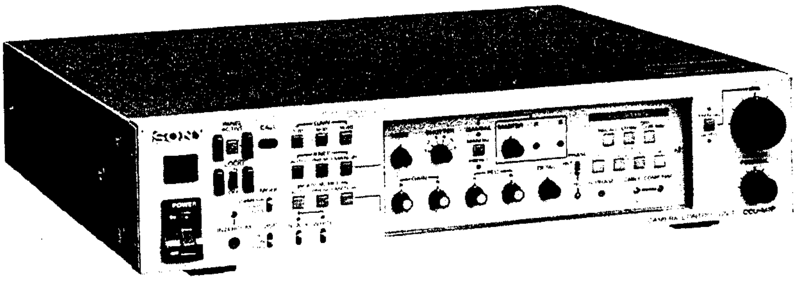
CAMERA CONTROL UNIT

# CCU-M7P



SONY®

## SERVICE MANUAL

## SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

## X-RAY RADIATION WARNING

Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

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# SECTION 1
# GENERAL DESCRIPTION

## Outline

The CCU-M7P is a camera control unit designed for the Sony DXC-M7P video camera. Various adjustment functions of the camera can be remotely controlled with this unit. It is especially convenient for program production using a recording system with two or more video cameras.

### Remote control capability for various adjustments

The unit allows remote control of the adjustments required for camera recording, such as automatic and manual adjustments of white balance, black balance and lens iris, gain selection of the video amplifier and pedestal level control, etc. Also, the knee and gamma adjustment functions provide high-quality pictures under various shooting conditions.

### Various output connectors

Besides the outputs of the conventional composite video signal (VBS), this unit is equipped with outputs for component video signal and Y/C signal to provide superior picture quality corresponding to many picture systems. Also, the RGB signal outputs allow a chroma keyer and an RGB monitor to be connected.

### Storage function of adjusted values (file function)

By using the file function, adjusted values can be stored and recalled to easily reproduce the same condition.
Four different adjusted value sets can be stored and a desired set can be called up when required.

### Gen-lock function

The gen-lock function enables video cameras to synchronize with an external reference signal. When using multiple video cameras, all the cameras can be synchronized with the same reference signal.
The SC and H phase differences between the gen-lock reference signal and the output signal can be adjusted.

### Built-in cable compensator

This unit can compensate for the transmission loss of high-frequency components and the output level decrease caused by camera cable extensions up to 300 m. The compensation level of composite video signals (VBS) can be independently fine-adjusted for the luminance signal and the chrominance signal.

### Return video

The return video signals from a special effects generator or a control console can be monitored in the viewfinder of a camera.

### Tally/intercom function

Communication among the operators of this CCU, the video camera and the control console is possible with the tally/intercom function. This unit is equipped with two tally intercom connectors to accept various intercom systems.

### Detail correction

Due to the built-in detail correction circuit, the contour of objects can be sharpened or softened as desired.

### Built-in electric shutter controller

The built-in electric shutter controller enables the unit to produce clear images even when objects are moving at very high speeds. By selecting an appropriate shutter speed, clear still pictures and slow motion pictures can be obtained in playback.

### Character display function

Using the character display function, the adjustment items and their current values or the values stored in the files are displayed on the monitor screen.

### Rack mounting

The unit can be mounted into a 19-inch standard rack.

# Precautions

## On safety

- Operate the unit only with a power source specified in the "Specifications" on page 1-30.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

## On installation

- Allow adequate air circulation to prevent internal heat buildup. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near a heat source such as a radiator or an air duct, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position.
  Never operate the unit in a vertical position.
- Keep the unit away from equipment with strong magnets as for example a large loudspeaker.

## On operation

When the unit is not in use, turn the power off.

## On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.
Do not use any type of solvent, such as alcohol or benzine, which might damage the finish.

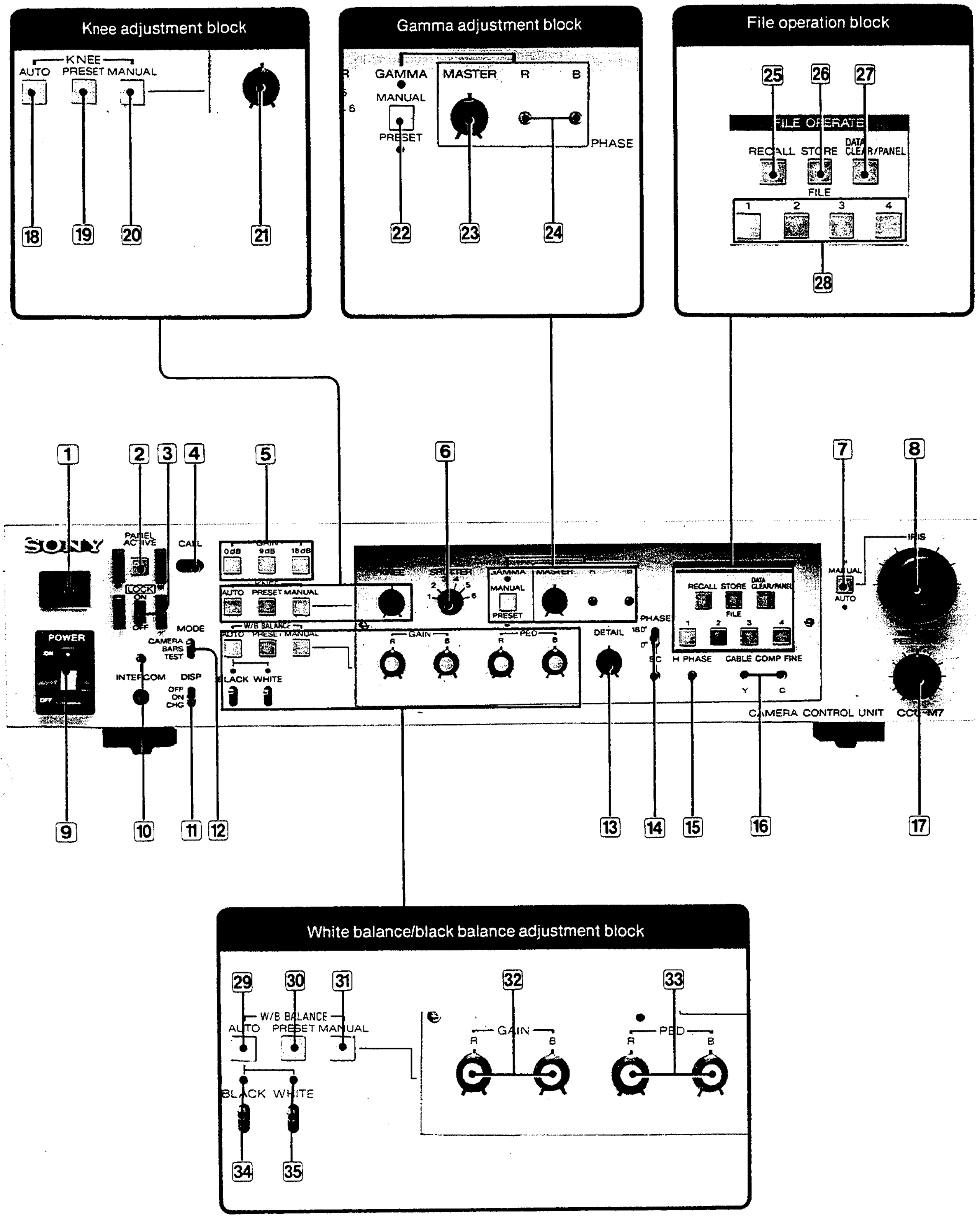
## On transportation

Save the original carton and associated packing material.
They will be useful should you have to transport or ship the unit.

If you have any questions about this unit, contact your Sony dealer.

# Location and Function of Controls

## Front Panel


Knee adjustment block
KNEE
AUTO
PRESET
MANUAL
18
19
20
21
Gamma adjustment block
GAMMA
MANUAL
PRESET
MASTER
R
B
PHASE
22
23
24
File operation block
25
26
27
FILE OPERATE
RECALL
STORE
DATA CLEAR/PANEL
FILE
1
2
3
4
28
1
2
3
4
5
6
7
8
SONY
PANEL ACTIVE
CALL
LOCK
ON
OFF
GAIN
0dB
9dB
18dB
KNEE
AUTO
PRESET
MANUAL
SPLITTER
GAMMA
MANUAL
PRESET
MASTER
R
B
RECALL
STORE
DATA CLEAR/PANEL
FILE
1
2
3
4
MANUAL
AUTO
IRIS
PED
POWER
ON
OFF
MODE
CAMERA
BARS
TEST
INTERCOM
DISP
OFF
ON
CHG
W/B BALANCE
AUTO
PRESET
MANUAL
BLACK
WHITE
GAIN
R
B
PED
R
B
DETAIL
PHASE
180°
0°
SC
H PHASE
CABLE COMP FINE
Y
C
CAMERA CONTROL UNIT
CCU-M7
9
10
11
12
13
14
15
16
17
White balance/black balance adjustment block
29
30
31
32
33
W/B BALANCE
AUTO
PRESET
MANUAL
GAIN
R
B
PED
R
B
BLACK
WHITE
34
35

**1 Tally lamp**
Lights up when the video camera connected to this unit is selected on the control console or the SEG-2550A special effects generator, indicating that the video is being recorded. This lamp also lights up when the CALL button on the CCU is depressed.
The indication number on the lamp can be changed by using the supplied sheets.

**2 PANEL ACTIVE button**
When the video camera connected to this unit is controlled by multiple equipment such as the RM-M7G remote control unit (available in the near future), press this button so that it lights, enabling this unit to control the camera. While this button is lit, the control panel switches, buttons and controls of this unit are operational. When the PANEL ACTIVE button of another equipment is pressed, the button of this unit goes off and the unit's control over the camera is cancelled.

**3 LOCK switch**
Normally, set this switch to the OFF position. The video camera can be controlled by this unit.
When this switch is set to the ON position, the settings of the switches, buttons and controls on the panel, except the CALL button, INTERCOM level control and CABLE COMP FINE control screws are maintained. This prevents the settings from being changed inadvertently after the adjustments are completed.

**4 CALL button**
Used to call the camera operator. While this button is depressed, the tally lamp in the camera's viewfinder and this unit's tally lamp will light.

**5 GAIN select buttons**
Used to switch the amplification gain of video signals. When one of these buttons is depressed, the button lights and the gain is increased by the indicated value.
Normally set the gain to 0 dB. When the lighting of subjects is low, press the 9 dB or the 18 dB button to increase the gain.

**6 SHUTTER selector**
Normally, set this switch to the 1 position (shutter OFF). When the switch is set to a position other than 1, recording will be performed with the following shutter speeds respectively.
2: 1/100
3: 1/250
4: 1/500
5: 1/1000
6: 1/2000

**7 IRIS MANUAL/AUTO select button and lamps**
Used to select the lens iris adjustment modes. Each time this button is pressed, the mode switches between MANUAL and AUTO. The lamp of the selected mode (MANUAL or AUTO) will light.
When the MANUAL lamp is lit, adjust the iris manually with the IRIS control.
When the AUTO lamp is lit, the iris is automatically adjusted to the optimum value.

**8 IRIS control**
Used to adjust the iris when the MANUAL lamp is lit. The iris can be adjusted continuously from "open" to "closed". When the AUTO lamp is lit, a fine adjustment of the automatically-adjusted iris can be made with this control.

**9 POWER switch**
When the ON side is depressed, power is turned on.
- When power is turned on, the setting condition when the power was previously turned off will take effect.

**10 INTERCOM jack (minijack) and level control screw**
Used to talk to the camera operator or the control console operator. Connect a headset, such as the DR-100, to the jack.
The sound volume of the headset can be adjusted by turning the control screw with a small screwdriver.

# Location and Function of Controls

11 **DISP (character display) switch**
Used to determine if character data, including file data, adjustment items, their values and switch settings, should be added to the output signal at the rear MONITOR OUT connector.

**OFF:** To display no character data. Only the video signal is output.
**ON:** To output character data with video signal.
**CHG:** To change the display contents. When you release the switch, it automatically returns to the ON position. Each time the switch is set to the CHG position, the display respectively switches to "no display", "panel data", "file 1 data ", "file 2 data", "file 3 data" and "file 4 data".

12 **MODE selector**
Used to select the signal to be output from this unit.
**CAMERA:** To output the signal from the camera.
**BARS:** To output the color bar signal.
**TEST:** To output the test signal.

13 **DETAIL control**
Used to compensate the contours of objects. Turn the control to obtain the desired contours.

14 **SC PHASE (subcarrier phase) switch and adjustment screw**
Used to adjust the subcarrier phase difference between the external sync signal and the output signal.
Set the switch to the appropriate position, then turn the adjustment screw with a screwdriver for fine adjustment.

15 **H PHASE (horizontal phase) adjustment screw**
Used to adjust the horizontal phase difference between the external sync signal and the output signal.

16 **CABLE COMP FINE (cable compensation fine) control screws**
Used for fine adjustment of the cable compensation levels when the video signal is fed out by using the VBS OUT connector.
After setting the rear CABLE COMP selector according to the length of the cable being used, turn these screws with a screwdriver if fine adjustment is required. The Y screw adjusts the Y (luminance) signal level and the C screw adjusts the C (chrominance) signal level.

- Use a waveform monitor and a vectorscope when doing the adjustments.

17 **MASTER PEDESTAL control**
Used to adjust the pedestal level (black level) of the video signal.

## Knee adjustment block

18 **KNEE AUTO button**
When depressed, this button lights and the auto knee circuit is activated. The circuit automatically adjusts the knee point to the optimum level to avoid clipping of bright parts under bright lighting.

19 **KNEE PRESET button**
When depressed, this button lights and the knee circuit works for the preset knee point.

20 **KNEE MANUAL button**
When depressed, this button lights and the knee point can be adjusted by using the KNEE control.

21 **KNEE control**
Used to manually adjust the knee point. This control is effective when the KNEE MANUAL button is lit.

## Gamma adjustment block

22 **GAMMA MANUAL/PRESET select button and lamps**
This button switches the gamma adjustment mode between MANUAL and PRESET. The selected mode lamp lights.
Normally set the mode to PRESET.
**MANUAL:** To adjust the gamma manually.
**PRESET:** To set the gamma to the preset value.

23 **GAMMA MASTER control**
Used to adjust the gamma. The R, G and B signals are adjusted while maintaining a preset balance.

24 **GAMMA R, B control screws**
Used to independently adjust the R gamma and the B gamma.
When fine adjustments are required, turn these screws with a screwdriver while using a waveform monitor and a vectorscope.

## File operation block

**25 RECALL button**
Used to recall data stored in the files. When pressed, this button and the FILE select button(s) having a number corresponding to the file(s) where data has been stored, start blinking.
To cancel the recalling operation, press the RECALL button again so that the button goes off.

- If data has not been stored in any file, no button blinks and message "NO FILE" appears on the monitor screen.

**26 STORE button**
Used to store panel settings in the files. When this button is pressed, this button and the FILE select button(s) having a number corresponding to the file(s) where no data has been stored start blinking.
To cancel the store operation, press the STORE button again so that the button goes off.

- If data has been stored in all the files, no button blinks and message "FILE FULL" appears on the monitor screen.

**27 DATA CLEAR/PANEL button**
Used to clear data stored in the files. When this button is pressed, this button and the FILE select button(s) having a number corresponding to the file(s) in which data has been stored start blinking.
To cancel the clear operation, press the CLEAR button again so that the button goes off.
The button can also be used to resume the panel settings after recalling a file data.

- If data has not been stored in any file, no button blinks and message "NO FILE" appears on the monitor screen.

**28 FILE select buttons**
Used to designate the number of a file in which data is to be stored or from which data is to be recalled for store or recall operations.
Only the button(s) currently effective in the operation will blink.

## White balance/black balance adjustment block

**29 W/B BALANCE AUTO (white balance and black balance automatic adjustment) button**
For automatic adjustment with the WHITE and BLACK switches, press this button so that it lights. The adjusted values are stored in the memory in the camera head. The stored values are recalled automatically when this button is pressed, and the camera operates.

**30 W/B BALANCE PRESET (white balance and black balance preset) button**
To operate the camera with the preset values, press this button so that it lights. When this button is lit, the white balance is adjusted for iodine lamps (color temperature 3200K) with the FILTER selector of the camera set at the 1 position. When no time remains to adjust the white balance, press the button so that it lights.

**31 W/B BALANCE MANUAL (white balance and black balance manual adjustment) button**
For manual adjustment of the white balance and the black balance by using the GAIN controls and the PED controls, press this button so that it lights.

**32 GAIN (video output level) controls**
Used to adjust the video output level when the W/B BALANCE MANUAL button is lit. The R control adjusts the R (red) component and the B control adjusts the B (blue) component.

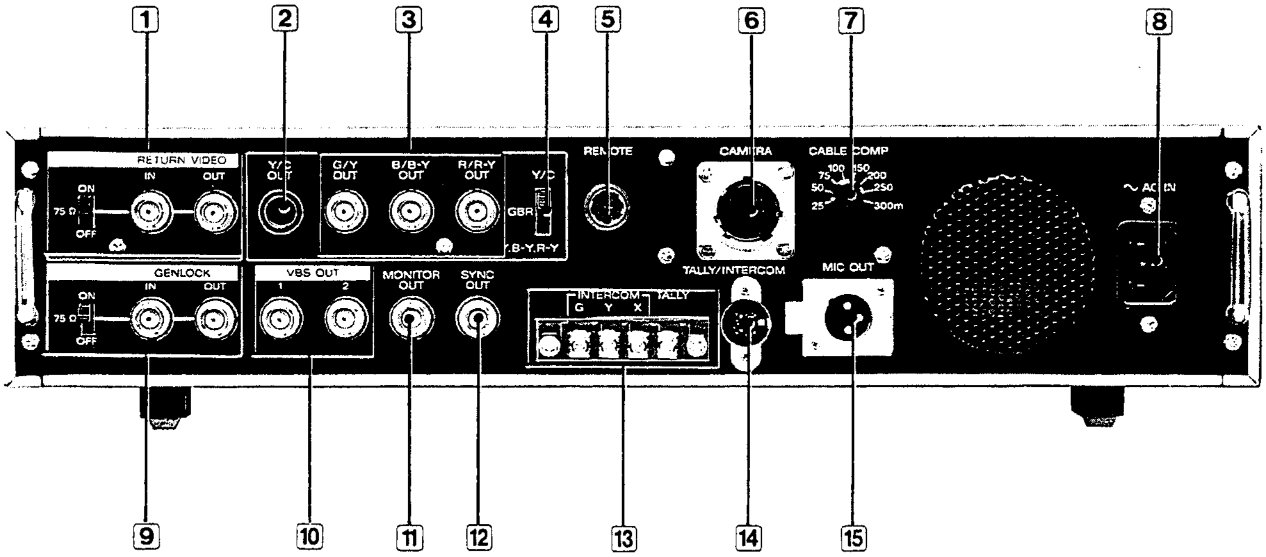
**33 PED (pedestal level) controls**
Used to adjust the pedestal level when the W/B BALANCE MANUAL button is lit. The R control adjusts the R (red) component and the B control adjusts the B (blue) component.

**34 BLACK (black balance adjustment) switch and lamp**
For automatic black balance adjustment, push this switch down after pressing the W/B BALANCE AUTO or W/B BALANCE PRESET button so that the button lights. The switch automatically returns to the original position when released. When the adjustment is completed, the lamp lights, and it goes off after about 5 seconds.

**35 WHITE (white balance adjustment) switch and lamp**
For automatic white balance adjustment, push this switch down after pressing the W/B BALANCE AUTO button so that the button lights. The switch automatically returns to the original position when released. When the adjustment is completed, the lamp lights, and it goes off after about 5 seconds.

# Location and Function of Controls

## Rear Panel


1
2
3
4
5
6
7
8
RETURN VIDEO
IN
OUT
ON
75 Ω
OFF
Y/C OUT
G/Y OUT
B/B-Y OUT
R/R-Y OUT
Y/C
GBR
Y.B-Y.R-Y
REMOTE
CAMERA
CABLE COMP
25 50 75 100 150 200 250 300m
~ AC IN
TALLY/INTERCOM
MIC OUT
GENLOCK
VBS OUT
1
2
MONITOR OUT
SYNC OUT
INTERCOM
TALLY
G Y X
9
10
11
12
13
14
15

**1 RETURN VIDEO connectors (BNC type) and 75-ohm termination switch**
Used to accept the output signal from a control console or a special effects generator to feed the on-the-air signal or the signal being recorded to the viewfinder of the camera.

**IN (input) connector**
Connect to the video output connector of a control console or a special effects generator.

**OUT (output) connector**
The signal connected to the IN connector is directly output from this connector. To feed the return video signal to another video unit, connect this connector to the return video input of the video unit.

**75-ohm termination switch**
When only the IN connector is used, set this switch to the ON position. When both the IN and OUT connectors are used, set it to the OFF position.

**2 Y/C OUT connector (DIN 4-pin)**
Used to feed out Y/C signals. Set the video output selector to the Y/C position, and connect this connector with a VTR or a video monitor which can process Y/C signals.

**3 Video signal output connectors (BNC type)**
Used to feed out R, G, B color signals or Y, B-Y, R-Y component signals. Set the video output selector to the corresponding position and connect this connector to an appropriate connector of a VTR having input connectors for component signals.

**4 Video output selector**
Used to select the video output signal at the Y/C OUT, G/Y OUT, B/B-Y OUT and R/R-Y OUT connectors.
**Y/C:** To feed out signals from the Y/C OUT connector.

- The signal outputs from the G/Y OUT, B/B-Y OUT and R/R-Y OUT connectors will be cut off.

**GBR:** To feed out color signals, R, G and B, from the G/Y OUT, B/B-Y OUT and R/R-Y OUT connectors, respectively.

- The signal output from the Y/C connector will be cut off.

**Y, B-Y, R-Y:** To feed out the component signals, Y, B-Y, and R-Y, from the G/Y OUT, B/B-Y OUT and R/R-Y OUT connectors respectively.

- The signal output from the Y/C connector will be cut off.

**5 REMOTE connector (10-pin)**
Used to connect the RM-M7G remote control unit (available in the near future) which remotely controls this unit, or to connect equipment to control the lens focus, zoom, pan, tilt operations.

**6 CAMERA connector (26-pin, Z type)**
Connect this connector to the 26-pin connector of the DXC-M7 video camera.

**7 CABLE COMP (cable compensation) selector**
Set this selector according to the length of the camera cable being used. The built-in cable compensator performs compensation according to the selected cable length to eliminate signal degradation.

**8 ∿ AC IN connector**
Used to connect an AC power source by using the supplied AC power cord.

**9 GEN LOCK connectors (BNC type) and 75-ohm termination switch**
Used for sync signal connections.

**IN (input) connector**
When the video camera should be synchronized with an external sync signal, supply a reference black burst signal or a composite signal (VBS: Video, Burst, Sync) to this connector.

- When no signal is supplied to the IN connector, the video camera will be synchronized with the signal if available at the RETURN VIDEO connector. If no signal is available at the RETURN VIDEO connector, the camera switches to the internal sync mode.

**OUT (output) connector**
The signal supplied to the IN connector is directly fed out from this connector. To synchronize another camera or video unit with the same reference signal, connect this connector to the reference signal input connector of that machine.

**75-ohm termination switch**
When only the IN connector is used, set this switch to the ON position. When both the IN and OUT connectors are used, set it to the OFF position.

**10 VBS OUT (video signal output) 1, 2 connectors (BNC type)**
Used to feed out normal composite video signals (VBS: Video, Burst, Sync). Connect these connectors to the video input connectors of video equipment such as a VTR or a special effects generator, etc.

- The same signal is fed out from the both connectors.

**11 MONITOR OUT connector (BNC type)**
Used to feed video signals (VBS) to be monitored. Character information on the file contents and the setting status can be added to the video signals by setting the DISP switch on the front panel to the appropriate position. Connect this connector to the video input connector of a video monitor.

**12 SYNC OUT (sync signal output) connector (BNC type)**
Used to feed out a sync signal (4 V p-p, negative) from a camera. Connect this connector to the sync signal input of an RGB monitor.

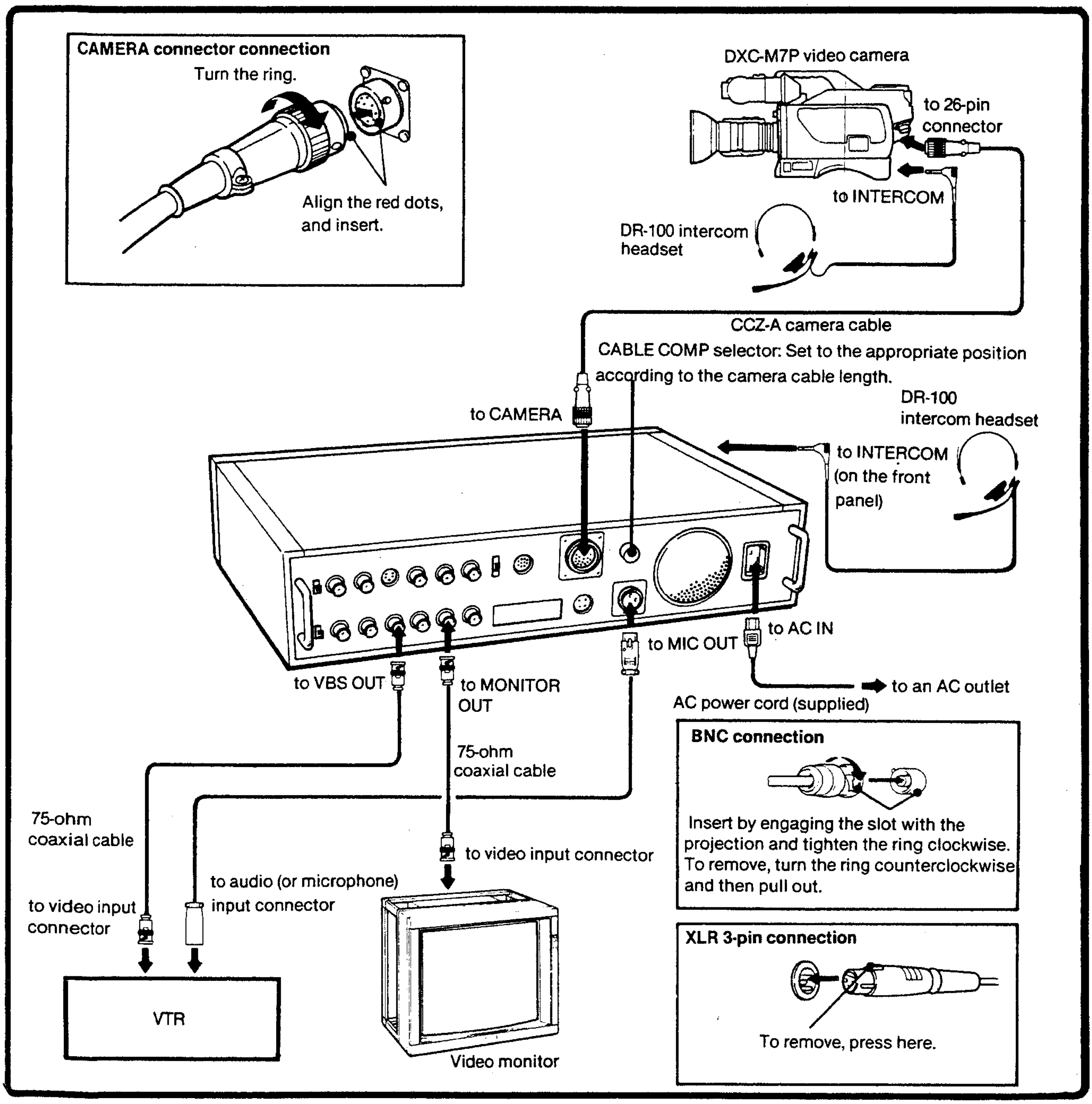
**13 INTERCOM/TALLY terminals**
Used to connect an intercom system which can not be connected to the DIN 4-pin TALLY/INTERCOM connector.

**14 TALLY/INTERCOM connector (DIN 4-pin)**
Used to connect the tally/intercom signals to enable the CCU or control console operator and the camera operator to communicate each other. Connect this connector to the TALLY/INTERCOM connector of a control console, a special effects generator, etc., by using an optional CCDD cable.

**15 MIC OUT (microphone output) connector (XLR 3-pin, male)**
Used to feed out microphone signal from a camera. Connect this connector to the audio input of an audio mixer or a VTR.

# Connections

## Connecting a Video Camera


CAMERA connector connection
Turn the ring.
Align the red dots, and insert.
DXC-M7P video camera
to 26-pin connector
to INTERCOM
DR-100 intercom headset
CCZ-A camera cable
to CAMERA
DR-100 intercom headset
to INTERCOM (on the front panel)
to VBS OUT
to MONITOR OUT
to MIC OUT
to AC IN
to an AC outlet
AC power cord (supplied)
75-ohm coaxial cable
75-ohm coaxial cable
to video input connector
to audio (or microphone) input connector
to video input connector
VTR
Video monitor
BNC connection
XLR 3-pin connection
To remove, press here.

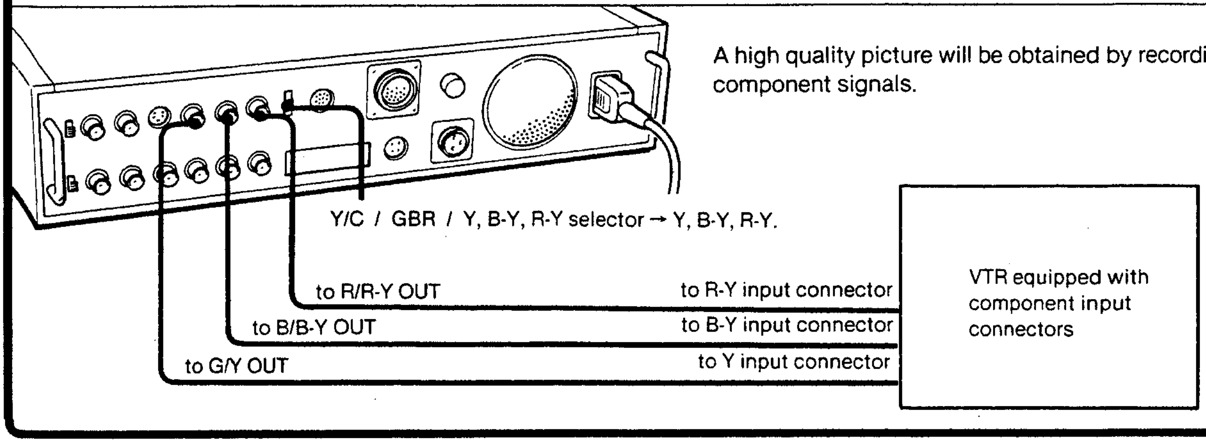
CABLE COMP selector: Set to the appropriate position according to the camera cable length.

Insert by engaging the slot with the projection and tighten the ring clockwise. To remove, turn the ring counterclockwise and then pull out.

**Note on the camera cable length**

When an optional CCZ-An (n means the cable length) camera cable is used, the cable can be extended up to 300 meters (999 feet). To extend the cable, set the CABLE COMP selector to the appropriate position according to the length of the cable to be used. Then the signal deterioration can be minimized.

## Connecting a VTR equipped with the component input connectors

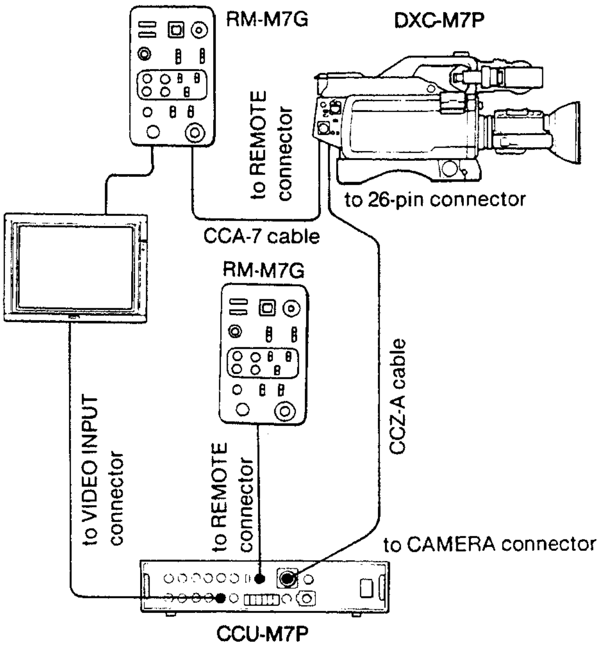

Y/C / GBR / Y, B-Y, R-Y selector → Y, B-Y, R-Y.
to R/R-Y OUT
to B/B-Y OUT
to G/Y OUT
to R-Y input connector
to B-Y input connector
to Y input connector
VTR equipped with component input connectors

A high quality picture will be obtained by recording component signals.

# Connecting an RM-M7G

An RM-M7G remote control unit will be available in the near future.
If you want to use an RM-M7G remote control unit with the CCU-M7, connect the RM-M7G as illustrated and follow the operating procedure described below.

Since a DXC-M7 also has a REMOTE connector, besides connecting one RM-M7G to the CCU-M7, you may connect another RM-M7G directly to the DXC-M7.


RM-M7G
DXC-M7P
to REMOTE connector
to 26-pin connector
CCA-7 cable
RM-M7G
CCZ-A cable
to VIDEO INPUT connector
to REMOTE connector
to CAMERA connector
CCU-M7P

1. When the power is turned on, the DXC-M7P is controllable by the CCU-M7P.
2. To control the DXC-M7P by the RM-M7G
   (a) First, set the following items using the CCU-M7P. Note that these cannot be adjusted from the RM-M7G.
   - Y/C / GBR / COMP selector
   - CABLE COMP selector
   - SC and H phases correction

   (b) Second, press the PANEL ACTIVE button **located on the RM-M7G.** The DXC-M7P can now be controlled by the RM-M7G through the CCU-M7P. While you are controlling the DXC-M7P, the items being adjusted will be displayed on the monitor connected either to the MONITOR OUT connector located on the rear of the CCU-M7P or to the RM-M7G. When controlling the DXC-M7P by the RM-M7G connected to the CCU-M7P, the lamp indication on the CCU-M7P will also change according to the setting you have changed with the RM-M7G.
3. To control the DXC-M7P from the CCU-M7P, not from the RM-M7G, press the PANEL ACTIVE button **located on the CCU-M7P.**

---

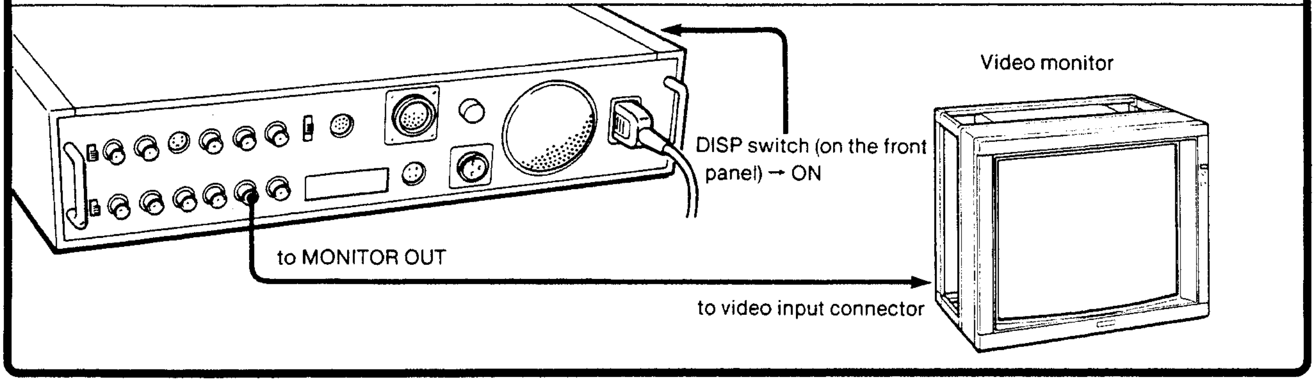
**Notes**

- The PANEL ACTIVE button located on the RM-M7G may not function if it is pressed while you are turning a control knob on the CCU-M7. If the button does not function, stop turning the knob, then press the PANEL ACTIVE button again.
- If you press the PANEL ACTIVE button located on the RM-M7G immediately after pressing a scene file NO. button on the CCU-M7 in order to store file data, the following may be displayed and the data may not be stored. This is a normal occurrence and should not be considered a malfunction.

Display: STORE
FILE NO 3
— NG —

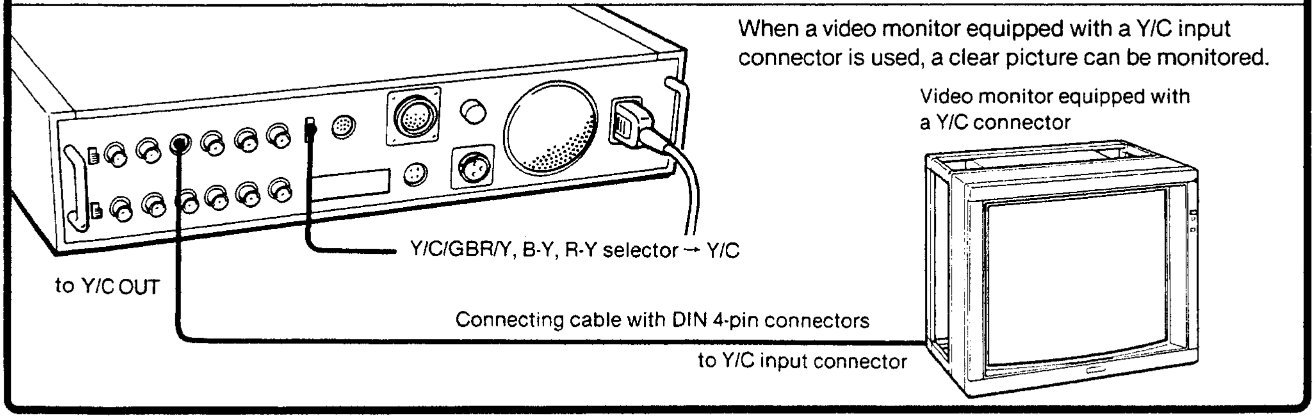
# Connecting a Video Monitor

## Monitoring a video and character signals

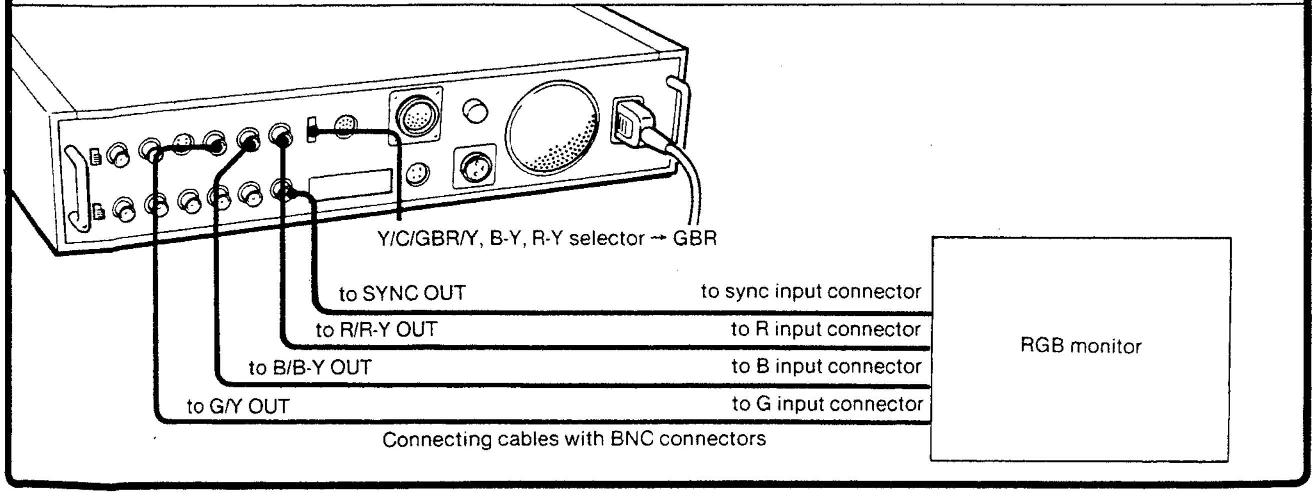

Video monitor
DISP switch (on the front panel) → ON
to MONITOR OUT
to video input connector

## Connecting a video monitor equipped with a Y/C connector

When a video monitor equipped with a Y/C input connector is used, a clear picture can be monitored.


Video monitor equipped with a Y/C connector
Y/C/GBR/Y, B-Y, R-Y selector → Y/C
to Y/C OUT
Connecting cable with DIN 4-pin connectors
to Y/C input connector

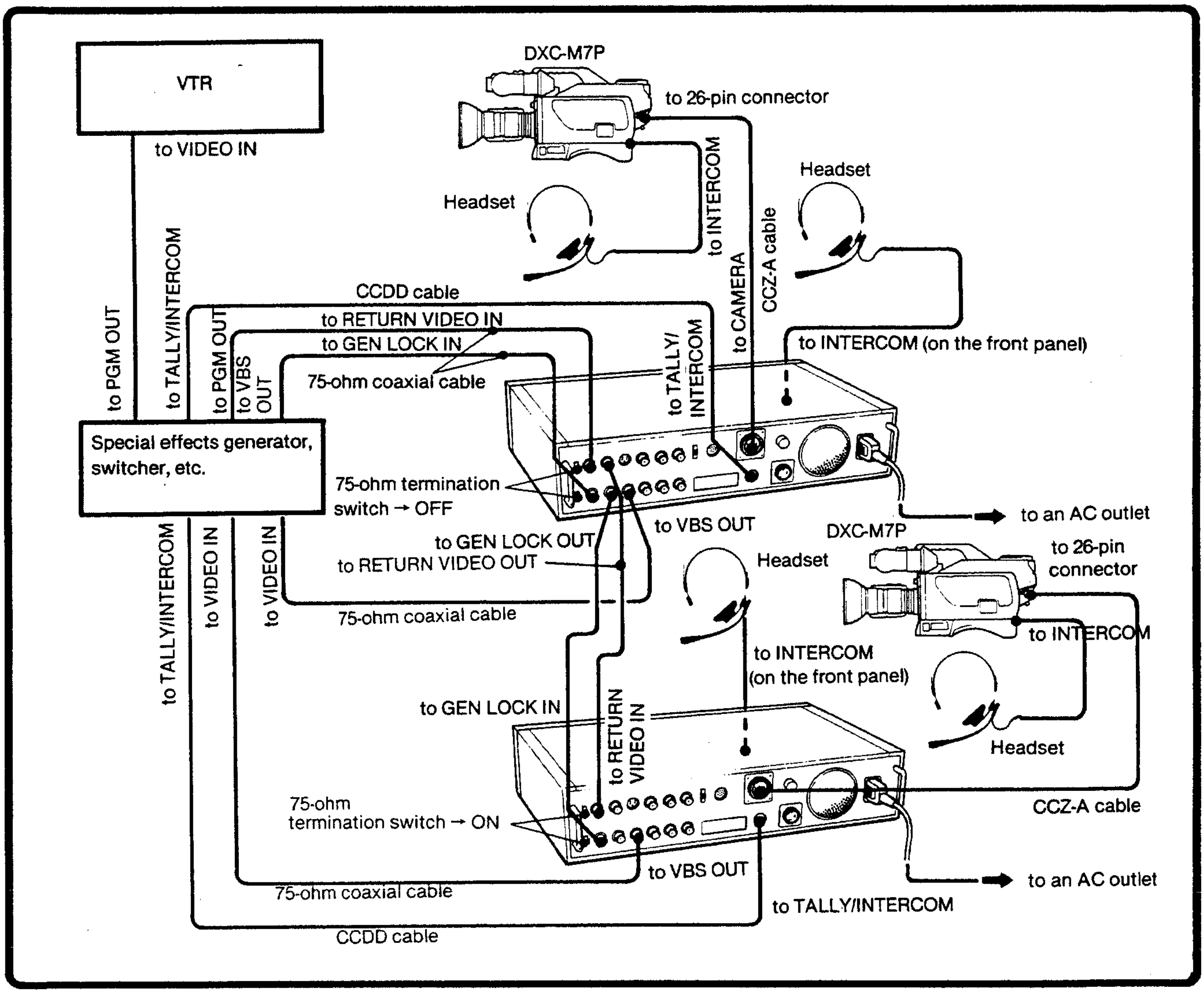
## Connecting an RGB monitor


Y/C/GBR/Y, B-Y, R-Y selector → GBR
to SYNC OUT
to sync input connector
to R/R-Y OUT
to R input connector
to B/B-Y OUT
to B input connector
to G/Y OUT
to G input connector
RGB monitor
Connecting cables with BNC connectors

# Connecting Two or More Video Cameras

When two or more DXC-M7 video cameras are used, connect them to the SEG-2550A special effects generator, a switcher, etc. using the CCU-M7 camera control units as shown in the diagram below. In this configuration, special effects, such as switching, mixing, wiping, keying and color matting can be performed.

Besides these effects, by connecting a CRK-2000 universal chroma keyer, you can obtain a wider variety of special effects.



VTR
to VIDEO IN
DXC-M7P
to 26-pin connector
Headset
to INTERCOM
CCZ-A cable
to CAMERA
Headset
to PGM OUT
to TALLY/INTERCOM
to PGM OUT
to VBS OUT
CCDD cable
to RETURN VIDEO IN
to GEN LOCK IN
75-ohm coaxial cable
to TALLY/INTERCOM
to INTERCOM (on the front panel)
Special effects generator, switcher, etc.
75-ohm termination switch → OFF
to GEN LOCK OUT
to RETURN VIDEO OUT
to VBS OUT
to an AC outlet
DXC-M7P
Headset
to 26-pin connector
to TALLY/INTERCOM
to VIDEO IN
to VIDEO IN
75-ohm coaxial cable
to INTERCOM
to INTERCOM (on the front panel)
to GEN LOCK IN
to RETURN VIDEO IN
Headset
75-ohm termination switch → ON
CCZ-A cable
to VBS OUT
75-ohm coaxial cable
to an AC outlet
to TALLY/INTERCOM
CCDD cable

---

**Note on connecting two or more video cameras**

When using two or more cameras, connections should be made so that all the cameras will lock to the same reference signal. As the IN and OUT connectors of the GEN LOCK connectors are directly connected in the unit, connect a reference signal to the GEN LOCK IN connector on a CCU, and connect the OUT connector of the CCU to the IN connector of the other CCU, and so forth. Then the same reference signal can be supplied to all the video cameras.

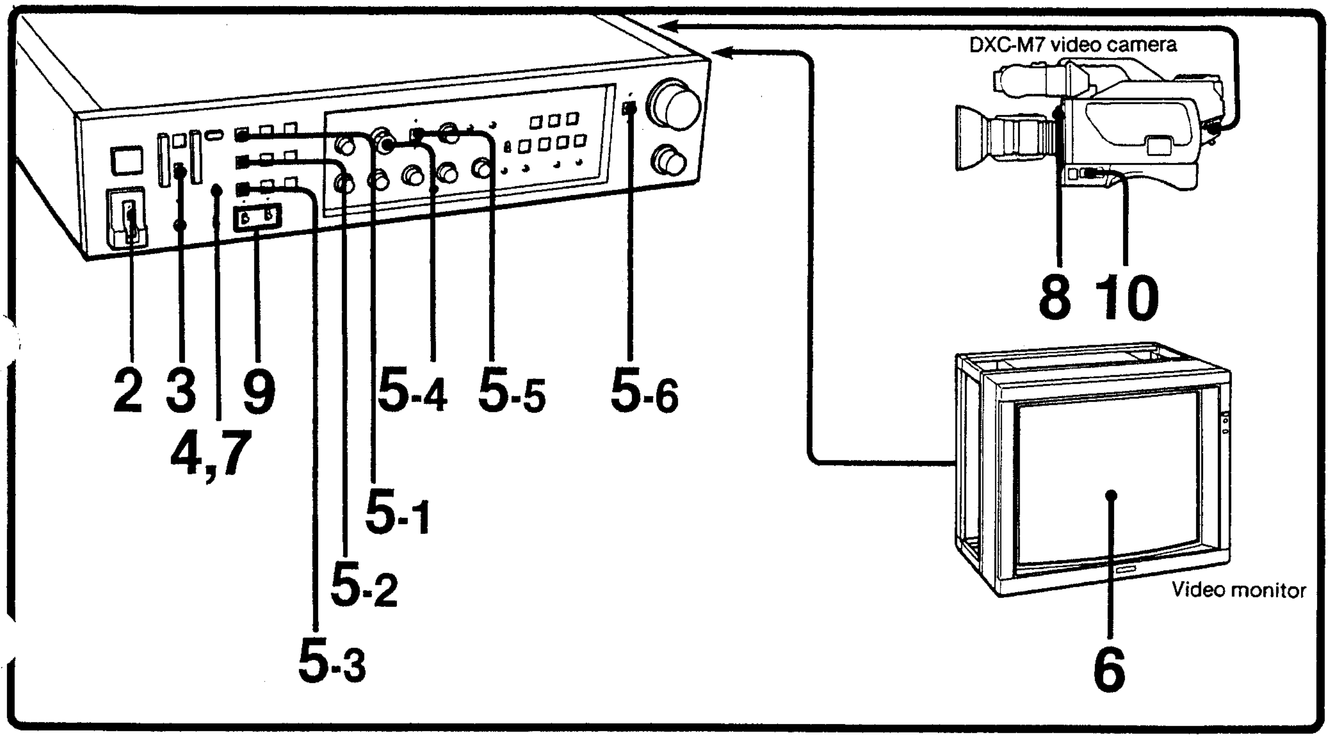
The IN and OUT of the RETURN VIDEO connectors are also connected in the unit so that the return video signal connected to a CCU can be supplied to the all cameras with the same connection as the reference signal.

- When the OUT connectors of the GEN LOCK and RETURN VIDEO connectors are used, be sure to set the 75-ohm termination switch to the OFF position. When not used, set the switch to the ON position.

# Operation

## Standard Settings and Basic Operation

The standard setting and basic operating procedure using a single camera is described here.



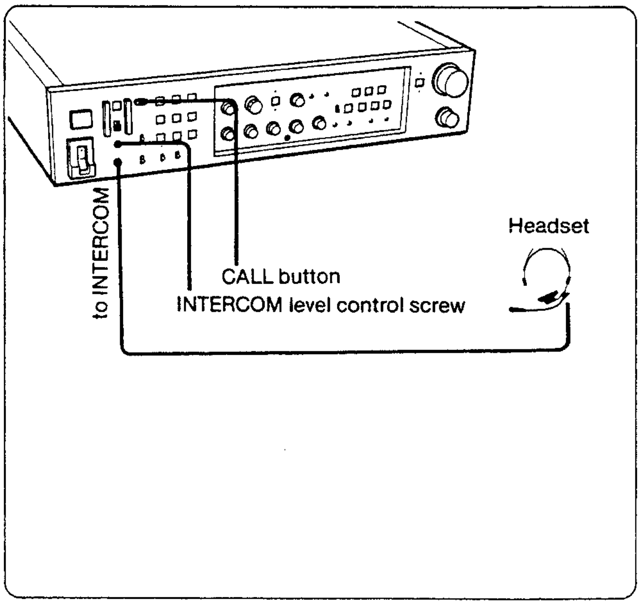
**When using two or more video cameras**
After the standard setting, adjust the H phase and SC phase of all the cameras before adjusting the color of the video monitor. (See "Adjusting the SC and H Phases".)

**Lock function**
When adjustments are finished, it is recommended to set the LOCK switch to the ON position. Then the function of the switches, buttons and controls on the panel will be locked, and the setting condition will be kept. In this condition, the adjusted values are not changed even if the switch, button or control is touched by mistake.

- Set the LOCK switch to the OFF position for readjustment or after shooting.

**Communication with a camera operator or with a control console operator**
When a DR-100 intercom headset (optional) is connected to the INTERCOM jack on the front panel, communication between the CCU and the camera is possible. To notify the camera operator that the CCU operator wants to talk with him, press the CALL button on the CCU. The REC/TALLY indicator in the viewfinder of the camera will light.
If a TALLY/INTERCOM connector or INTERCOM/TALLY connectors on the rear panel is/are connected to the intercom connector on the control console or special effects generator, or to the intercom system, communication with the operator of the connected equipment is also possible.

To adjust the volume of the sound at the headset, turn the INTERCOM level control screw.



1. Turn the power of the connected equipment ON.
2. Press the ON side of the POWER switch.
   The setting condition when the power was previously turned off automatically takes effect, and the corresponding buttons and lamps will light.
3. Set the LOCK switch to the OFF position.
4. Set the MODE selector to the BARS position.
5. Set the selector and buttons as follows (standard setting):
   1) Press the 0 dB button of the GAIN select buttons so that it lights.
   2) Press the KNEE AUTO button so that it lights.
   3) Press the W/B BALANCE AUTO button so that it lights.
   4) Set the SHUTTER selector to the 1 position.
   5) Press the GAMMA MANUAL/PRESET button so that the PRESET lamp lights.
   6) Press the IRIS MANUAL/AUTO button so that the AUTO lamp lights.
6. Adjust the color of the video monitor using the color bar signal. (See "Adjusting a Video Monitor".)
7. Set the MODE selector to the CAMERA position.
8. Select an appropriate filter with the FILTER selector on the camera.
9. Adjust the black balance and white balance. (See "Adjusting Black Balance and White Balance".)
10. Start shooting.

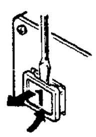
Adjust the gain, knee, gamma, iris, master pedestal, etc. if necessary. For details of the adjustment, see "Adjustments".

**Tally lamp**

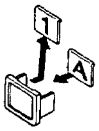
The tally lamp will light when the camera connected to the CCU is selected on the control console or the special effects generator, or when the CALL button of the CCU is pressed to call the camera operator.

The number or character on the tally lamp can be changed using the number or character segments (supplied) as shown below.

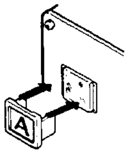
1. Detach a tally indication using a screwdriver.



2. Change the number or character with the supplied segment.



3. Attach.



**Return Video**

When a program output of the control console is connected to the RETURN VIDEO IN connector, the return video signal (the signal selected on the control console) can be seen on the viewfinder screen by setting the VF VIDEO selector to the AUTO position and pressing the VTR START/RETURN VIDEO button on the camera. When two or more cameras are used, the camera operators can check the final program output of the system.

Return video monitoring is possible on the camera's viewfinder, but is not on a video monitor connected to the CCU.

**Note on the signal input to the RETURN VIDEO connector**

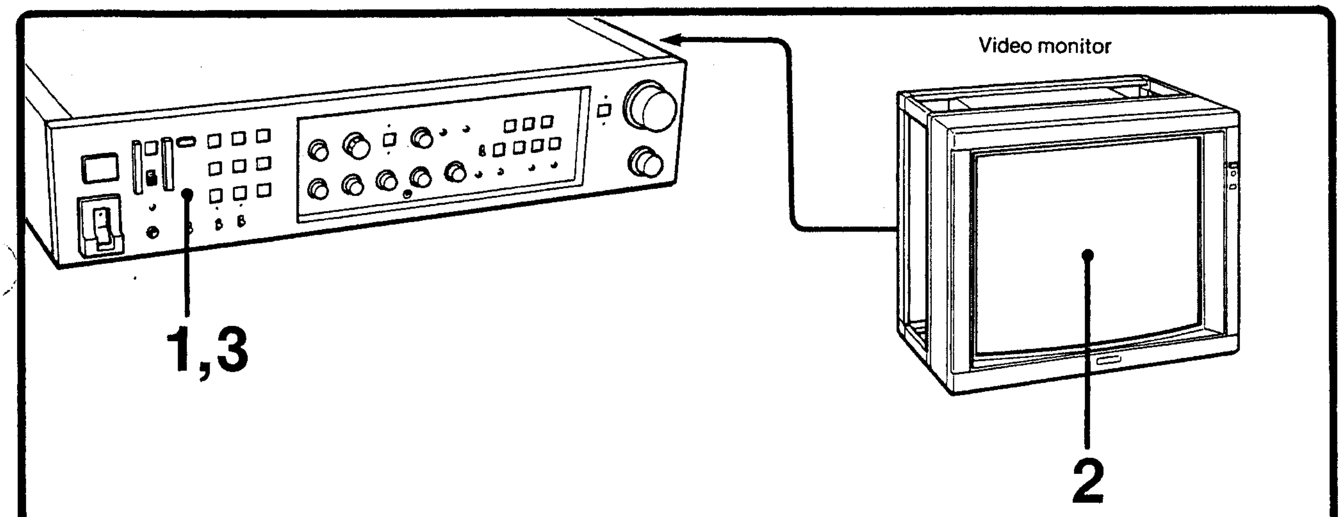
The signal input to the RETURN VIDEO IN connector should be synchronized with the signal input to the GEN LOCK IN connector. Or the synchronization of the camera may be unstable.

# Adjustments

## Adjusting a Video Monitor

When a color video monitor is used to monitor a picture, adjust the color of the monitor by using the color bar signal.

- For details on adjustments, refer to the instruction manual furnished with the DXC-M7P video camera.



**1** Set the MODE selector to the BARS position.

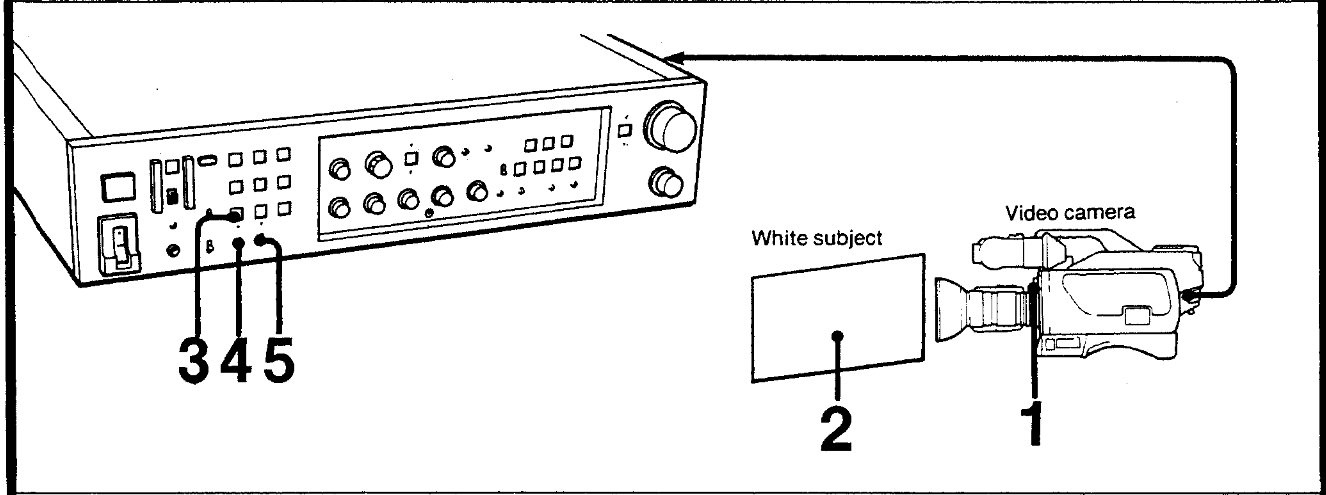
**2** Adjust the color and hue controls on the monitor.

**3** Set the MODE selector to the CAMERA position after the adjustment is finished.

# Adjusting Black Balance and White Balance

The black balance and white balance should be correctly adjusted to obtain lifelike color reproduction and a clear picture. The adjustment should be made under the same lighting condition as that under which the shooting will be made.

## Automatic adjustment



**1** Set the FILTER selector of the camera to the position corresponding to the lighting conditions.

**2** Point the camera at a white subject (white wall, white paper, etc.) and zoom up on it.
(Refer to the instruction manual of the DXC-M7P.)

**3** Press the W/B BALANCE AUTO button so that it lights.

**4** Push down the BLACK switch.
Following characters are displayed on the monitor screen.

AUTO BLACK : OP

When the black balance is adjusted, the lamp above the BLACK switch lights for about 5 seconds, and extinguishes.
On the monitor screen, the following characters are displayed.

AUTO BLACK : OK

**5** Push down the WHITE switch.
Following characters are displayed on the monitor screen.

AUTO WHITE : OP

When the white balance is adjusted, the lamp above the WHITE switch lights for about 5 seconds, and extinguishes.
On the monitor screen, the following characters are displayed.

AUTO WHITE : OK

**Notes**

- When the lighting conditions of the subject are changed, adjust the white balance only. Readjustment of the black balance is not required.
- If the lamp does not light about ten seconds after pushing the BLACK or WHITE switch, push the switch again.
- If the lamp above the WHITE switch blinks, check the camera viewfinder screen to find out the cause. If the selected filter is improper, the following characters are displayed. Change the FILTER selector position of the camera, then try the white balance adjustment again.

AUTO WHITE : NG
:LOW LIGHT
TRY AGAIN

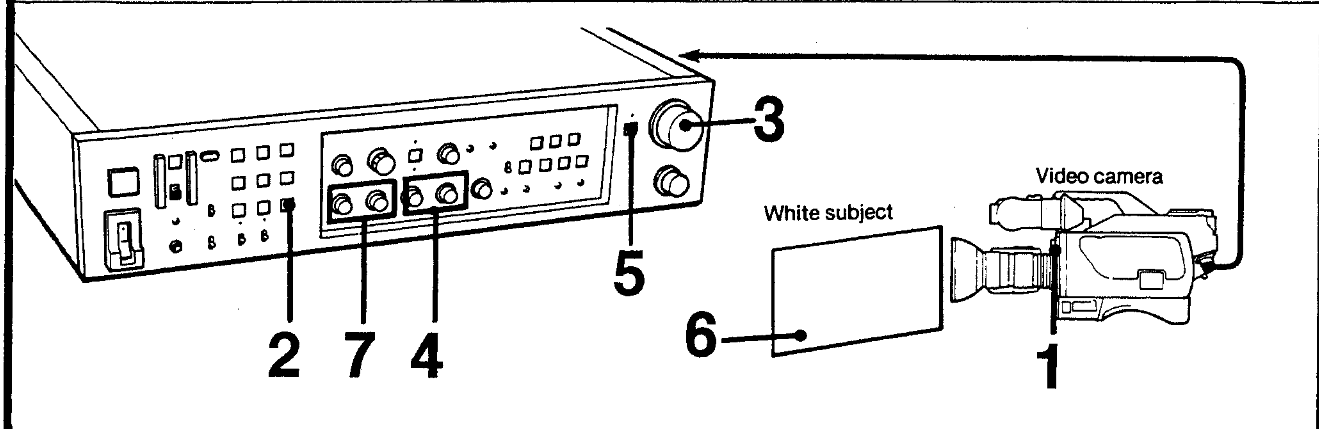
- If the WHITE switch is pushed down without pressing the AUTO button or if the BLACK switch is pushed down without pressing the AUTO or PRESET button, the following will be displayed to warn the improper operation.

BLACK : MANUAL
WHITE : MANUAL
WHITE : PRESET

# Adjustments

## Manual adjustment

For adjusting precisely, it is recommended to use a waveform monitor and a vectorscope.



**1** Set the FILTER selector of the camera to the position corresponding to the lighting conditions.

**2** Press the W/B BALANCE MANUAL button so that it lights.

**3** Close the iris.

**4** Turn the PED controls to adjust the black balance.
Adjust the balance so that the monitor screen becomes black.
The characters like the followings are displayed on the monitor screen.

R PED. : 00

B PED. : 00

- Turn the controls by monitoring the waveform.

**5** Set the iris to the automatic adjustment mode.

**6** Point the camera at a white subject (white wall, white sheet, etc.) and zoom up on it.

**7** Turn the GAIN controls to adjust the white balance.
Adjust the balance so that the white subject on the color monitor screen is pure white.
The characters like the followings are displayed on the monitor screen.

R GAIN : 00

B GAIN : 00

- Turn the controls by monitoring the waveform.

**Note**

When the MODE selector is set to the TEST position and the test signal is output, the gain and pedestal level will be the preset value. No control will be possible by the GAIN R, B controls and PED R, B controls.

**Painting**

Using the GAIN and PED controls, a picture can be colored to obtain special effects. For example, a picture can be made reddish to indicate sunset or bluish to show early morning.
This is called "painting".
Monitoring the picture on the color monitor screen, turn the GAIN and PED controls so that the desired color is obtained.

**If you want to start recording without adjusting the white balance**

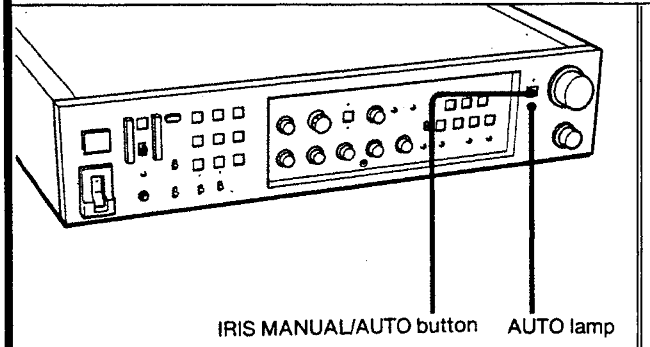
Set the FILTER selector of the camera to the appropriate position, and press the W/B BALANCE PRESET button. The button lights up, and an approximate balance will be obtained.

WHITE : PRESET

# Adjusting the Iris

Be sure to set the IRIS selector on the lens unit to the AUTO position.

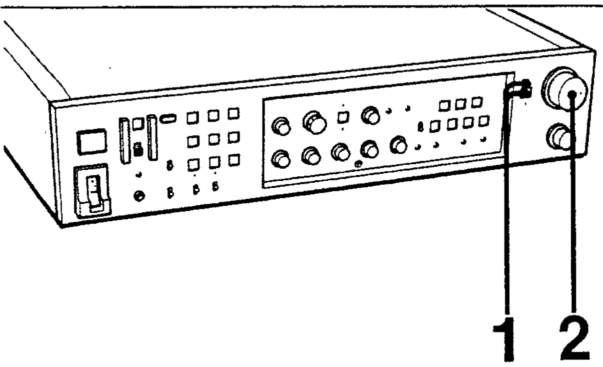
## Automatic adjustment



Press the IRIS MANUAL/AUTO button to light up the AUTO lamp.
The iris will be automatically adjusted according to the brightness of the subject. You can precisely adjust the iris in the automatic iris mode by turning the IRIS control.
On the monitor screen, the following characters are displayed.

```
IRIS  :AUTO
```

## Manual adjustment



Manual adjustment may be more effective when recording an object against a bright sky or a scene with high contrast.

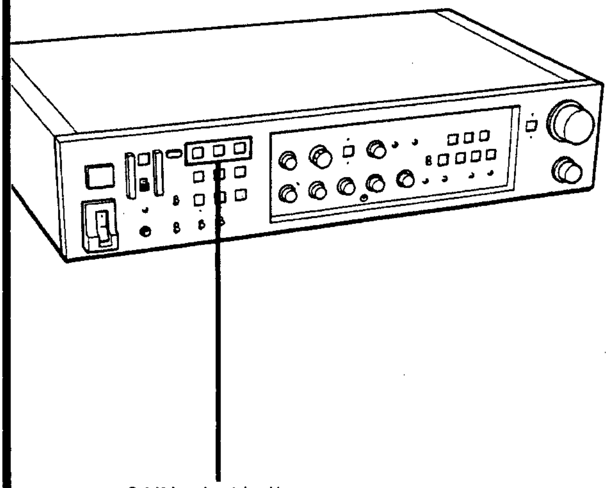
**1** Press the IRIS MANUAL/AUTO button to light up the MANUAL lamp.
On the monitor screen, the following characters are displayed.

```
IRIS  :MANUAL
```

**2** Turn the IRIS control to adjust the iris.
On the monitor screen, the following characters are displayed.

```
IRIS
```

# Adjusting the Video Output Level



If a clear picture cannot be obtained because of insufficient lighting, raise the video output using the GAIN select buttons.

GAIN select buttons

0 dB button: Normally make this button lit.
On the monitor screen, the following characters are displayed.

GAIN : 0DB

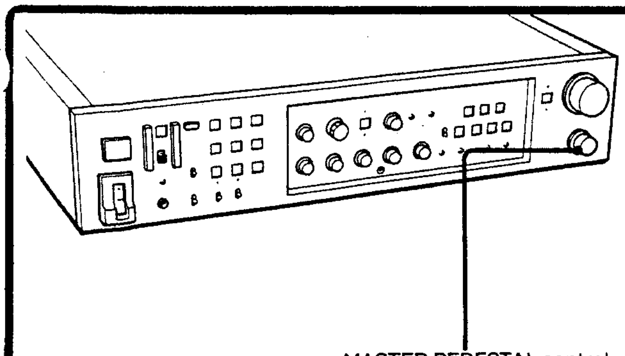
9 dB button: The output video level will be increased by 9 dB.
On the monitor screen, the following characters are displayed.

GAIN : 9DB

18 dB button: The output video level will be increased by 18 dB.
On the monitor screen, the following will be displayed.

GAIN : 18DB

# Adjusting the Master Pedestal Level



When the details of the dark parts of a picture cannot be reproduced in detail, adjust the master pedestal level with the MASTER PEDESTAL control.
When the control is turned, characters like the followings are displayed on the monitor screen.

MAS.PED: 00

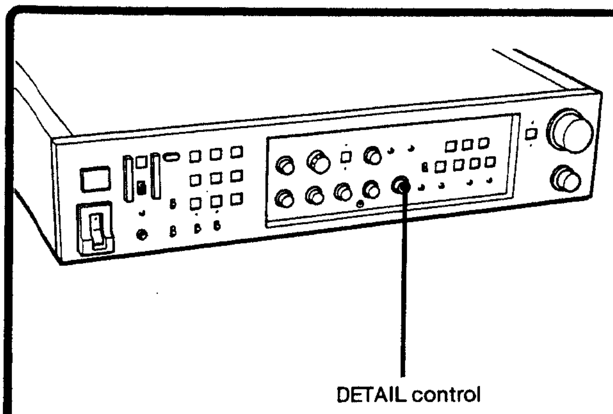
- Normally set the MASTER PEDESTAL control at the center position.
- Use of a waveform monitor is recommended for easier adjustment.

---

**Notes**

The adjusted value of the master pedestal level normally cannot be memorized. However, by resetting the internal switch of the DXC-M7 video camera, it can be memorized. For details, refer to the instruction manual of the video camera.

# Adjusting the Details



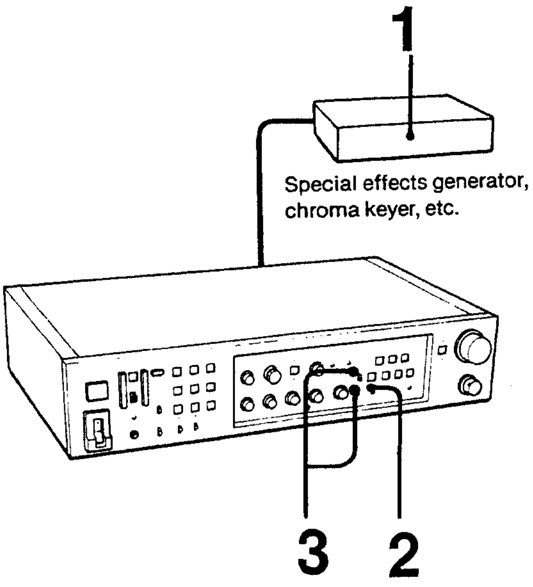
The contours of a picture can be changed by the DETAIL control. Turn the control and the contours will become softer or clearer, and the characters like the followings are displayed on the monitor screen.

```
DETAIL  :   00
```

# Adjusting the SC and H Phases

When two or more cameras are used, all cameras should be adjusted so that the picture tone of all cameras will be the same. Supply the same reference signal to all the cameras, and proceed as follows.

## If the phase check indication is available



If the CCU-M7P camera control units are connected to a special effects generator such as the SEG-2550A, or the CRK-2000P universal chroma keyer, the phase check indication is available.

1. Set the PHASE INDICATION switch of the connected special effects generator or the chroma keyer to the ON position.
2. Adjust the horizontal (H) phase by turning the H PHASE adjusting screw of the CCU-M7P.
3. Adjust the subcarrier (SC) phase by using the SC PHASE switch and adjusting screw of the CCU-M7P.

- For details, refer to the instruction manual of the special effects generator or chroma keyer.

# Adjustments

## If the phase check indication is not available

Pick one camera as the reference camera and adjust all other cameras to it. For example, if Camera 1 is picked as the reference camera, first precisely adjust Camera 1 to obtain the best possible picture, and then adjust the picture of Camera 2 to Camera 1, the picture of Camera 3 to Camera 1, and so on.

### Adjusting the H phase

Adjust the horizontal sync signal phase of the output signal so that the phases of the reference signal and output signal become the same. Use of a waveform monitor or an oscilloscope is recommended for easier adjustment.

### Adjusting the SC phase

Adjust the subcarrier phase of the output signal so that the phases of the reference signal and output signal become the same. It is recommended to use a vectorscope, or to display the same pictures on the upper and lower (or right and left) halves of the video monitor screen by using the wipe function of the special effects generator for easier adjustment.

- For details, refer to the instruction manual of the special effects generator, etc.

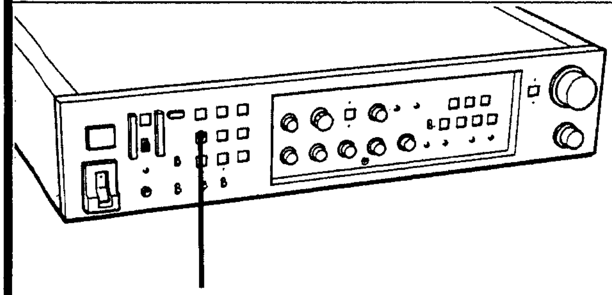
# Adjusting the Knee

When recording a scene with high contrast or with bright light, adjust the knee level to reproduce the bright parts of the picture clearly.

- Normally press the KNEE PRESET button so it lights. The factory-set standard knee point can then be obtained. When the KNEE PRESET button is pressed, the following characters are displayed on the monitor screen.

KNEE :PRESET

## Automatic adjustment

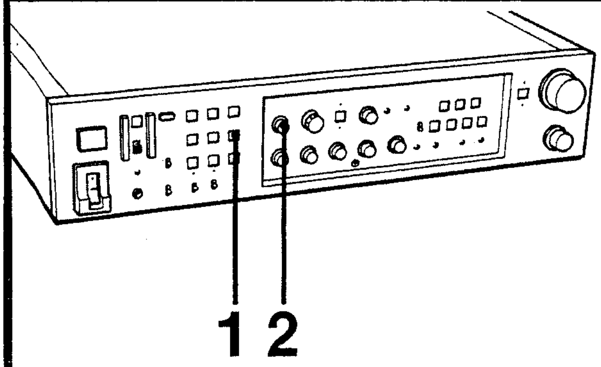


Press the KNEE AUTO button so it lights. When the button is pressed, the following characters are displayed on the monitor screen.

KNEE :AUTO

The proper knee point is set according to the brightness of the subject to obtain the best possible picture.

## Manual adjustment



1 Press the KNEE MANUAL button so it lights. The following characters are displayed on the monitor screen.

KNEE :MANUAL

2 Turn the KNEE control. When the control is turned, the characters like the followings are displayed on the monitor screen.

KNEE : 00

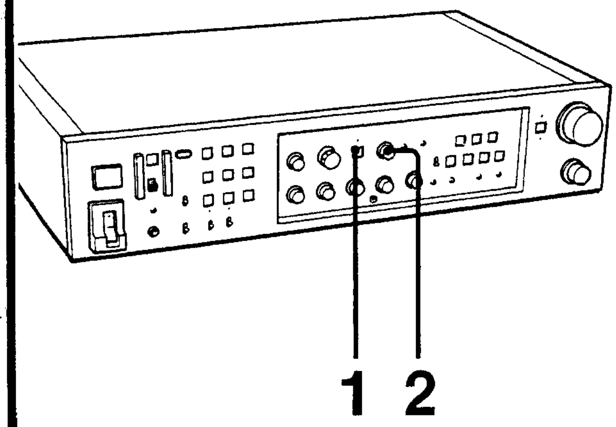
# Compensating the Gamma

To have lifelike color reproduction of the dark parts of the picture, adjust the gamma.

- Normally, press the GAMMA MANUAL/PRESET button so that the PRESET lamp lights. The best possible picture can then be obtained at the preset gamma value. When the PRESET lamp is lit, the following characters are displayed on the monitor screen.

GAMMA : PRESET

## Manual compensation



The gamma is compensated with the R, G and B components of the signal balanced well by the GAMMA MASTER control.

**1** Press the GAMMA MANUAL/PRESET button so that the MANUAL lamp lights.
The following characters are displayed on the monitor screen.

GAMMA : MANUAL

**2** Turn the GAMMA MASTER control.
When the control is turned, the characters like the followings are displayed on the monitor screen.

M. GAMMA : 00

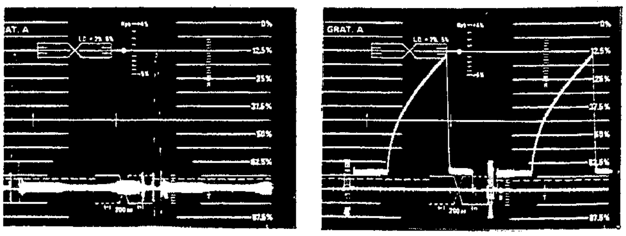
---

**Fine adjustment**
If the gamma is to be adjusted precisely, turn the R and B control screws with a screwdriver with the MANUAL lamp lit. For fine adjustment, use a waveform monitor and a vectorscope. When the screw is turned, characters like the followings are displayed on the monitor screen.

R GAMMA : 00
B GAMMA : 00

- When the above adjustment is performed, the balance of the R, G, and B components is changed, and the GAMMA MASTER control cannot compensate the gamma with the preset balance. Therefore adjust the R and B control screws, in case of unavoidable conditions only, and be sure to use a waveform monitor and a vectorscope when adjusting.

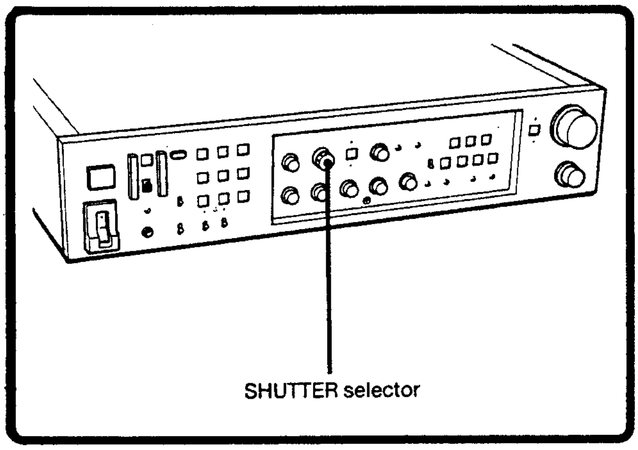
**Retrieving the standard balance after fine adjustment**
When the R and B control screws are turned, the balance of the R, G and B components will be changed, and the control with standard balance will not be obtained with the GAMMA MASTER control. To retrieve the standard balance, turn the R and B control screws while referring to a waveform monitor so that the waveform on the monitor screen will be as thin as possible.



Waveform on a waveform monitor.

# Selecting a Shutter Speed

Normally set the SHUTTER selector to the 1 position. Then normal shooting is done without using a shutter. To shoot a subject moving at high speeds clearly, or to obtain a strobe effect, a still picture, a slow motion, etc., select the appropriate shutter speed with the SHUTTER selector.

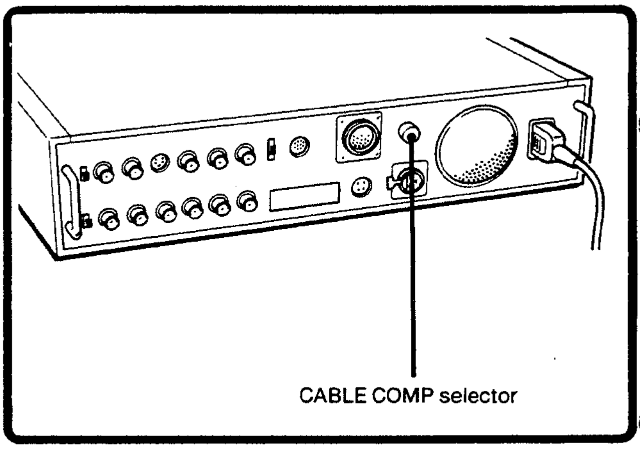


SHUTTER selector

| Setting of the SHUTTER selector | Shutter speed | Display on the monitor screen |
|---|---|---|
| 1 | without shutter | SHUTTER:OFF |
| 2 | 1/100 sec. | SHUTTER SPEED:1/100 |
| 3 | 1/250 sec. | SHUTTER SPEED:1/250 |
| 4 | 1/500 sec. | SHUTTER SPEED:1/500 |
| 5 | 1/1000 sec. | SHUTTER SPEED:1/1000 |
| 6 | 1/2000 sec. | SHUTTER SPEED:1/2000 |

# Compensating the Cable Length

Set the CABLE COMP selector on the rear panel to the appropriate position according to the length of the cable which connects the video camera to the CCU-M7P. The transmission loss of high-frequency components or the output level decrease caused by the cable extension can be compensated up to 300 meters.

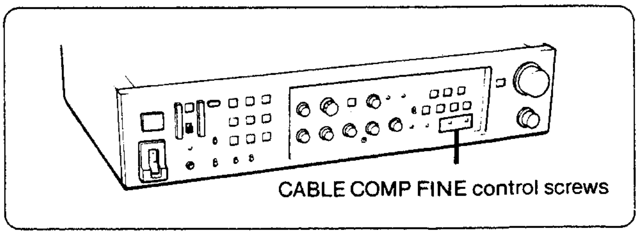


CABLE COMP selector

---

**Fine compensation**

The output signal from the VBS OUT connector can be compensated precisely with the CABLE COMP FINE Y and C control screws. These screws control the Y (luminance) signal and C (chrominance) signal independently. Compensation with these screws is not necessary for ordinary operations. Only when compensation is unavoidable, turn the screws by monitoring the signal with a waveform monitor and a vectorscope.

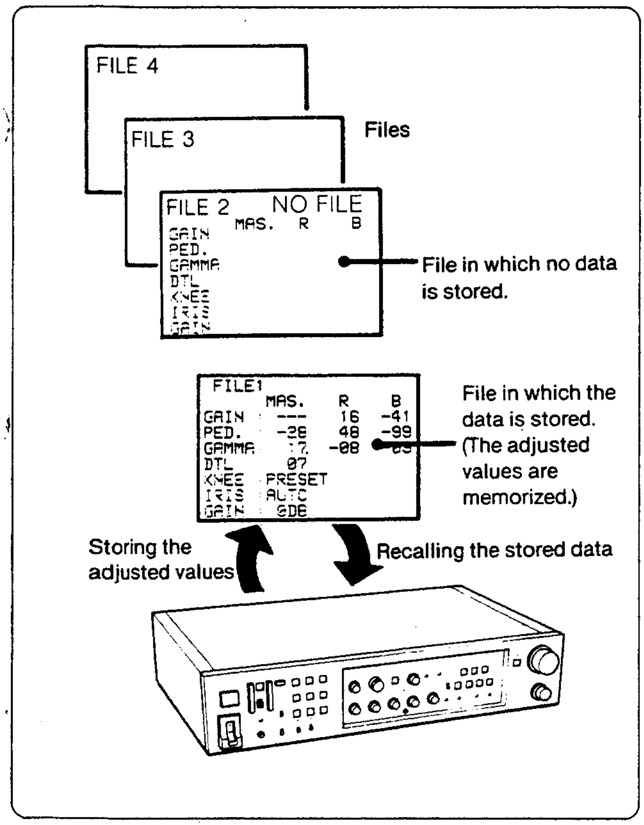


CABLE COMP FINE control screws

# File Operation

## What is a File?

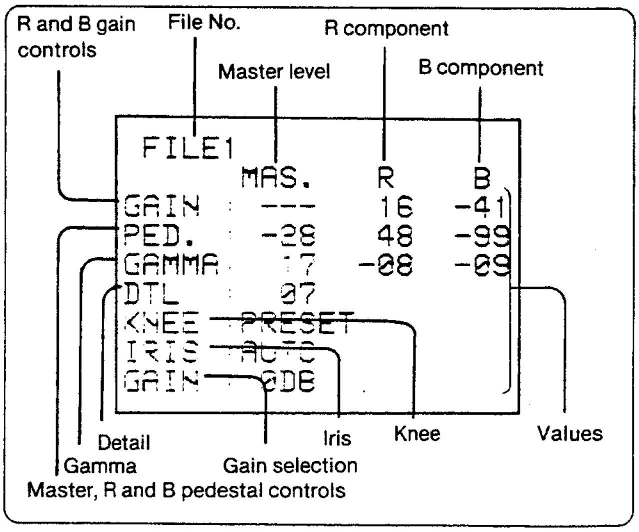
The DXC-M7P video camera can store the adjusted values in memory. This is called a file function. A file is a kind of memo in which data can be written, erased, and rewritten.
The CCU-M7P camera control unit controls the file operation. By using the file operation buttons on the CCU-M7P, the data is stored, recalled and erased. Up to 4 files can be controlled by the CCU-M7P.
In addition to the data stored in the four files, you can use the data currently set by the controls on the control panel.


FILE 4
FILE 3
Files
FILE 2 NO FILE
MAS. R B
GAIN
PED.
GAMMA
DTL
KNEE
IRIS
GAIN
File in which no data is stored.
FILE1
MAS. R B
GAIN --- 16 -41
PED. -28 48 -99
GAMMA 17 -08 -09
DTL 07
KNEE PRESET
IRIS AUTO
GAIN 9DB
File in which the data is stored. (The adjusted values are memorized.)
Storing the adjusted values
Recalling the stored data

By using this file function, the same shooting conditions can be easily reproduced. For example, some conditions are set during a rehearsal, and the adjusted values are stored in a file. For actual shooting, just recall the file. Then the same conditions as that in the rehearsal will be reproduced and the shooting can start immediately. In the DXC-M7P, up to four types of data can be stored. Thus adjusted values under various conditions such as outdoors, indoors, rainy days, etc. can be stored. When shooting, recall the data appropriate for the shooting.
The following data can be stored in each file and the adjusted values can be kept in memory for some years.

R.B GAIN,
R.B PEDESTAL,
MASTER R.B GAMMA (GAMMA MANUAL/PRESET),
DETAIL,
KNEE (KNEE AUTO/MANUAL/PRESET),
IRIS (IRIS AUTO/MANUAL),
MASTER PEDESTAL,
GAIN (0/9/18 dB)

The stored data can be checked by displaying it on the monitor screen with the character display function of the CCU-M7P.
For example, when the data of File 1 is recalled, the following is displayed on the monitor screen.


R and B gain controls
File No.
R component
Master level
B component
FILE1
MAS. R B
GAIN --- 16 -41
PED. -28 48 -99
GAMMA 17 -08 -09
DTL 07
KNEE PRESET
IRIS AUTO
GAIN 9DB
Detail
Iris
Knee
Values
Gamma
Gain selection
Master, R and B pedestal controls

---

**About the panel data**

This data will automatically be stored in memory and kept intact for a couple of days after the CCU-M7P is turned off. If you turn on the CCU-M7P within a couple of days, the panel data will automatically be retrieved.
If the data has already left the memory, the panel data will be reset as follows.

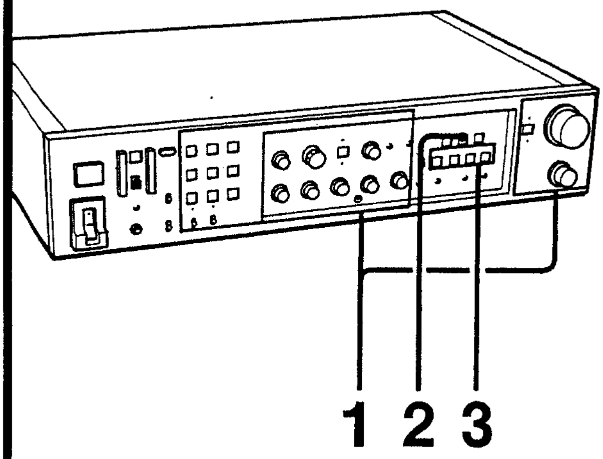
| | |
|---|---|
| GAIN: 0 dB | GAMMA: PRESET |
| KNEE: AUTO | IRIS: MANUAL |
| WHITE: AUTO | |

**Relationship between the values displayed and the adjustment ranges controllable with the controls**

Although the adjusted values will be displayed in figures (−99 to + 99) while you are turning the controls from the minimum to the maximum, the actual ranges you can control are as follows.

MAS PED: approx. + 30 IRE
GAIN: + 4 dB
DTL: approx. + 4 to OFF
KNEE: 110 to 85
GAMMA: approx. 0.40 to 0.50

# Storing Data in a File



**1** Perform the necessary adjustments under the shooting conditions.

**2** Press the STORE button.
The STORE button and the FILE select button(s) having the number corresponding the files where data is not stored start blinking.
The following characters are displayed on the monitor screen.

```
STORE
FILE NO.?
        1~4
```

**3** Press the FILE select button having the number corresponding the file where data is to be stored.
For example, when the 4 button is pressed, the following characters are displayed on the monitor screen.

```
STORE
FILE NO.4
  : OK
```

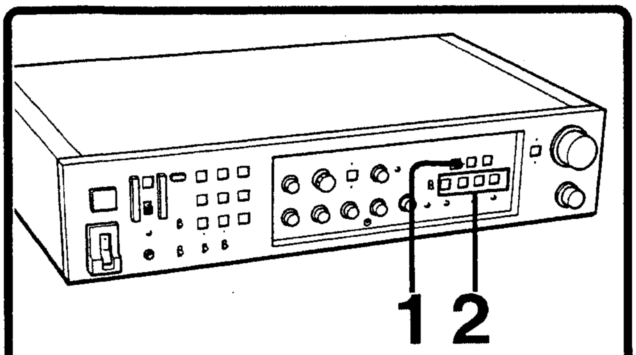
---

**If "FILE FULL" is displayed**

```
FILE FULL
```

If "FILE FULL" is displayed when the STORE button is pressed, it means data has been stored in all the files. No more data can be stored in a file. To store new data, erase unnecessary data (see "Erasing data stored in the file"), then store the data.

# Recalling Data Stored in the File



**1** Press the RECALL button.
The RECALL button, and the FILE select button(s) having the number corresponding to the files where data is stored start blinking.
The following characters are displayed on the monitor screen.

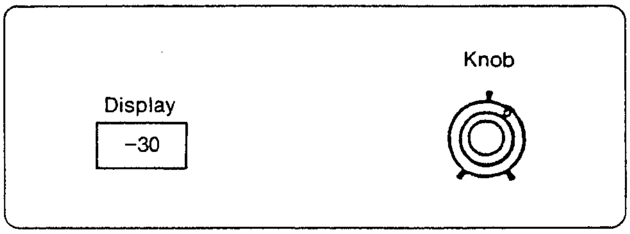
```
RECALL
FILE NO.?
       1~4
```

**2** Press the FILE select button having the number corresponding to the file whose data is to be used.
The pressed button will light up, and the items are set according to the stored data.
For example, when the 1 button is pressed, the following will be displayed on the monitor screen.

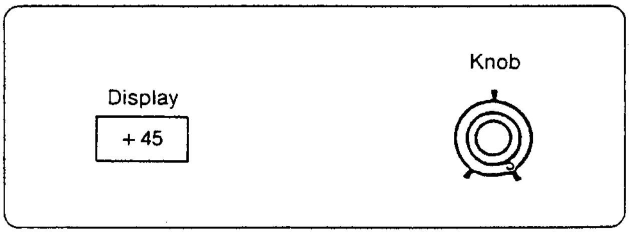
```
RECALL
FILE NO.1
   : OK
```

**Adjusting the controls in the Relative Mode**
When you press the RECALL button to retrieve data, the value displayed will be automatically related to the position of the mark on the knob.

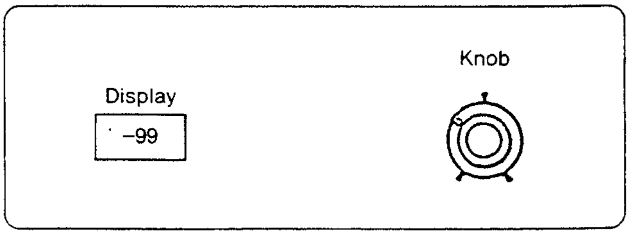
Thus:



Then if the knob is turned fully clockwise:



If the knob is turned counterclockwise until the display reads −99, the mark will be in this position.



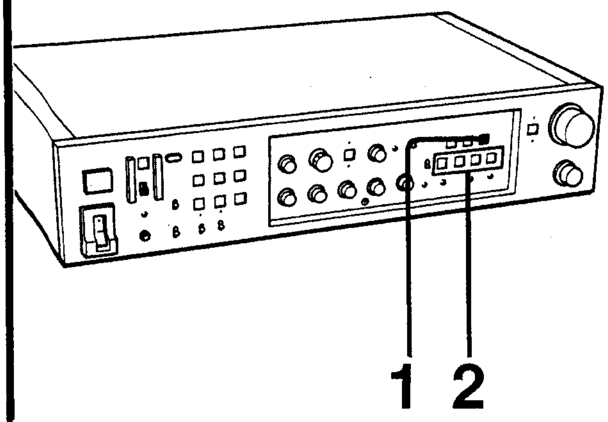
If the knob is turned fully counterclockwise, the display will remain at −99.
From this point, the control is in the Absolute Mode in which the control functions normally.

**White balance adjustment when data is recalled**
If you recall the white balance or black balance adjusted values stored using the AUTO or PRESET function, the data can be retrieved but the adjustment operation will automatically be set in the MANUAL mode.
Turning the GAIN controls relatively adjusts the white balance against the recalled value. This results in the same condition as for painting.

**Keeping the stored data**
Data stored in the file will be kept until the data is erased. Even if the recalled data is changed, the stored data is not changed.

**If "NO FILE" is displayed**
If "NO FILE" is displayed when the RECALL button is pressed, data is not stored in any file.

# Erasing Data Stored in the File



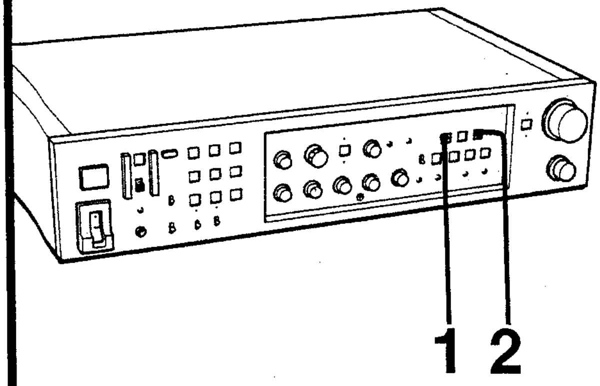
**1** Press the DATA CLEAR/PANEL button.
The DATA CLEAR/PANEL button, and the FILE select button(s) having the number corresponding to the file(s) where data is stored start blinking.

```
DATA CLEAR
     FILE NO.?
          1~4
```

**2** Press the FILE select button whose data is to be erased.
For example, when the 3 button is pressed, the following characters are displayed on the monitor screen.

```
DATA CLEAR
     FILE NO.3
        : OK
```

# Terminating the File Operation



To terminate the file operation and to operate the DXC-M7P by using the CCU-M7P control panel, proceed as follows.

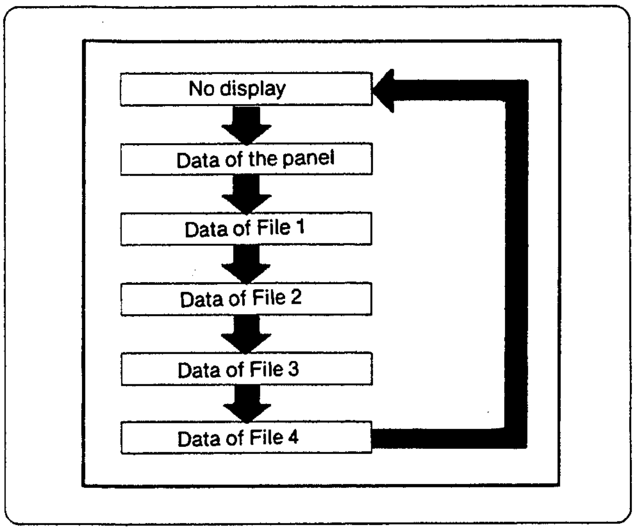
**1** Press the RECALL button.
The RECALL button and the FILE select button(s) having the number corresponding to the file(s) where data is stored, and the DATA CLEAR/PANEL button start blinking.

```
RECALL
FILE NO.?
       1~4
     PANEL
```

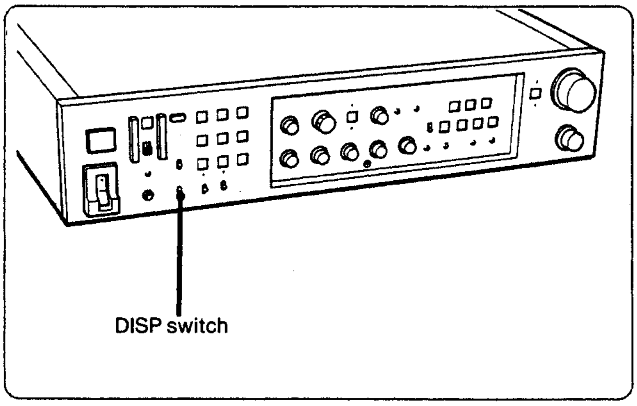
**2** Press the DATA CLEAR/PANEL button.
All the FILE select buttons extinguish, and the panel operation mode is retrieved.

# Character Display

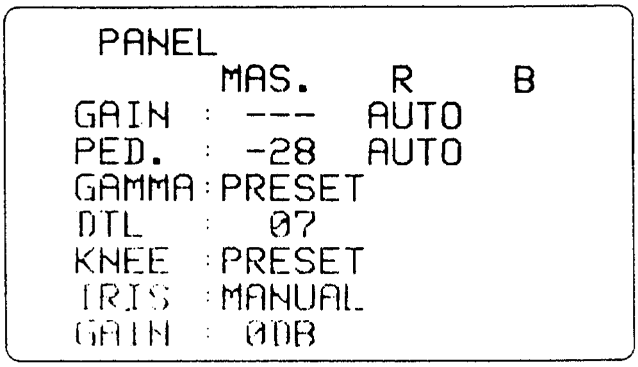
Set the DISP switch on the front panel to the ON position. The adjusted items and values will be displayed on the video monitor connected to the MONITOR OUT connector for about 2 seconds.
The current setting on the panel and the data stored in the files can also be displayed. The displayed data respectively changes each time the DISP switch is pushed to the CHG position.



When the data of the panel is displayed, the displayed value changes as the setting of the switches, buttons and controls are changed.



**Displayed data**



```
  PANEL
          MAS.     R     B
GAIN  :   ---    AUTO
PED.  :   -28    AUTO
GAMMA : PRESET
DTL   :    07
KNEE  : PRESET
IRIS  : MANUAL
GAIN  :   0DB
```

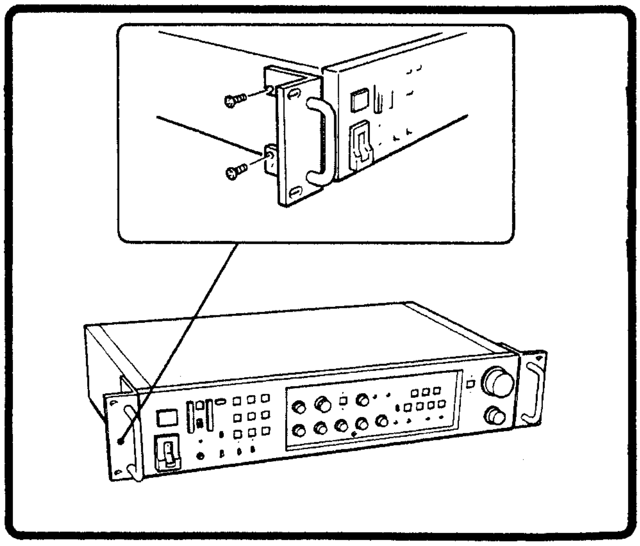
# Rack Mounting

When the rack mount brackets (supplied) are attached to the CCU-M7P, the unit can be mounted in a 19-inch standard rack.

- For details on rack mounting, consult your Sony dealer.

**Note**

When many CCU-M7Ps are stacked in a rack, the rotating sound of the fans in the units may resonate.



# Specifications

Power requirements
220/240 V AC ±10%, 50/60 Hz

Power consumption
62 W

Input and output connectors
- VBS OUT 1, 2 (BNC type) ×1 in each
  - VBS 1.0 Vp-p, 75 ohms
- Y/C OUT (DIN 4-pin) ×1
  - 1.0 Vp-p, 75 ohms
- G/Y, B/B-Y, R/R-Y (BNC type) ×1 in each (selectable)
- R, G, B
  - 0.7 Vp-p, 75 ohms
- Y, R-Y, B-Y
  - 1.0 Vp-p, 75 ohms
- SYNC OUT (BNC type) ×1
  - 4 Vp-p, 75 ohms, negative
- GEN LOCK IN/OUT (BNC type) ×1 in each
  - VBS (1.0 Vp-p) or black burst (0.3 Vp-p), loop-through, with 75-ohm termination switch
- RETURN VIDEO IN/OUT (BNC type) ×1 in each
  - VBS (1.0 Vp-p), loop-through, with 75-ohm termination switch
- CAMERA (26-pin) ×1
- MIC OUT (XLR 3-pin, male) ×1
- TALLY/INTERCOM
  - DIN 4-pin ×1
  - Connecting terminals 1 set
- MONITOR OUT (BNC type) ×1
  - VBS (1.0 Vp-p), 75 ohm, ON/OFF of character signal output
- INTERCOM (minijack) ×1
- REMOTE (10-pin) ×1

Control items
- Iris (auto, manual)
- White balance (auto, manual, preset)
- R, B gain
- Black balance (auto, manual)
- R, B pedestal
- Gain
- Master pedestal
- Knee (auto, manual, preset)
- Gamma (manual, preset)
- Master gamma
- R, B gamma
- Details
- Shutter
- Mode (camera, color bar, test signal)
- Tally/intercom (level adjustable)
- SC phase
- H phase
- File (store, recall, erase)
- Power

Operating temperature
−10°C to +45°C

Storage temperature
−20°C to +50°C

Dimensions
424 × 103 × 387 mm (w/h/d)
not including projecting parts and controls

Weight
8.5 kg

Accessories supplied
- Rack mount bracket (2)
- Screws (4)
- AC power cord (1)
- Tally indication segments (1 set)
- Operation manual (1)

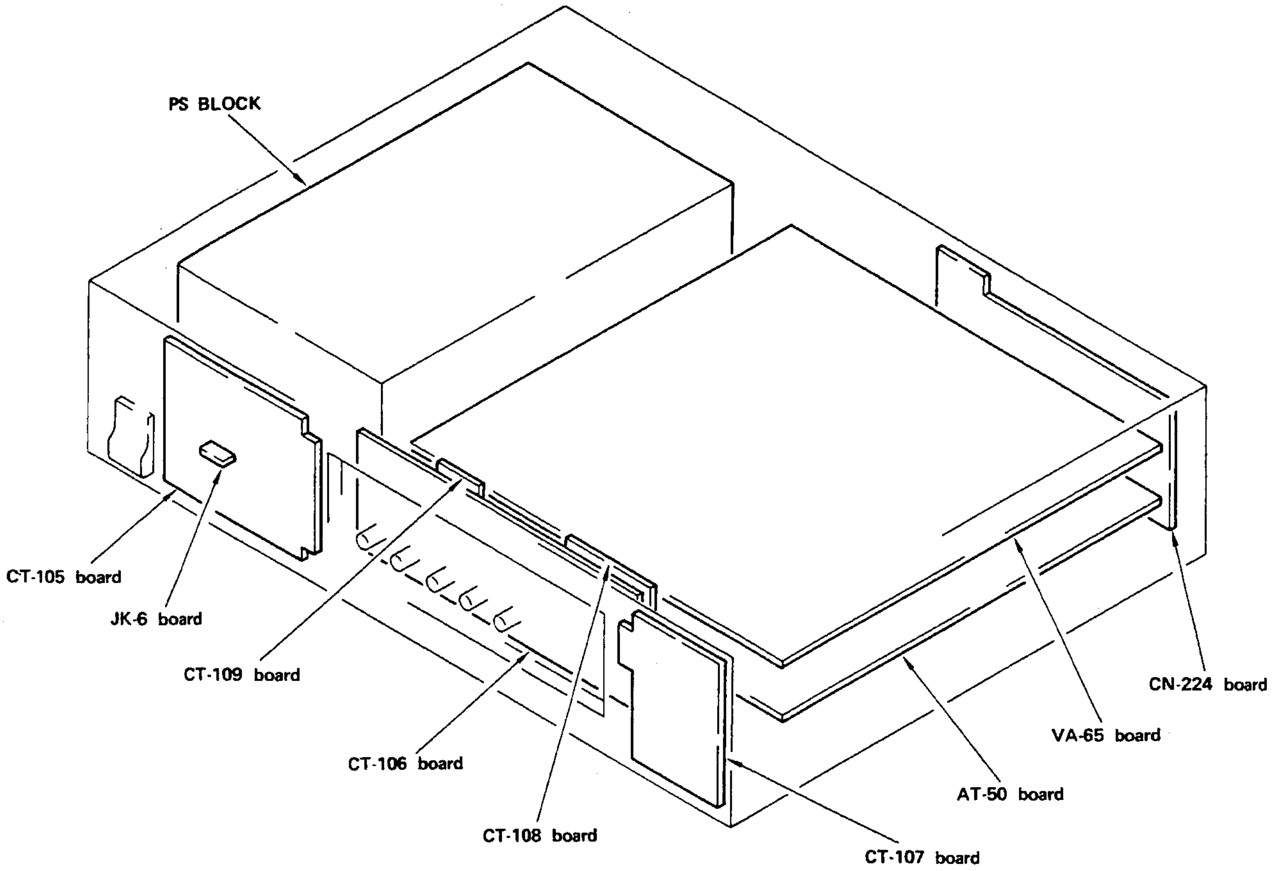
Design and specifications subject to change without notice.

# Recommended Equipment

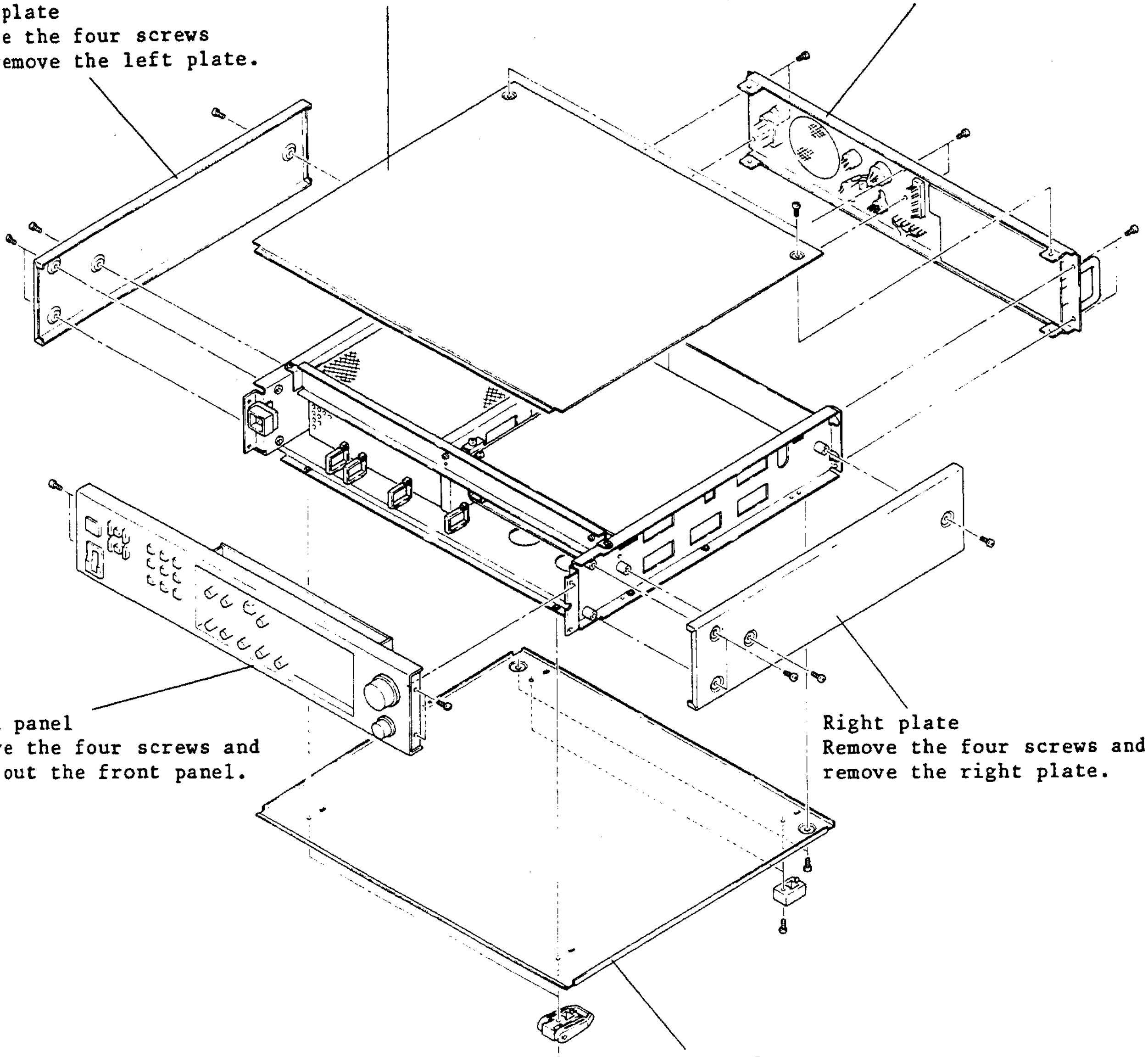
Video camera DXC-M7P
Remote control unit RM-M7G
Video cassette recorder VO-6800PS
Special effects generator SEG-2550A
Headset DR-100
Camera cable CCZ-A2, CCZ-A5, CCZ-A10, CCZ-A25, CCZ-A50, CCZ-A100
Tally/intercom cable CCDD-2.5
CCZ-A cable extension adaptor CCZZ-1B, CCZZ-1E

# SECTION 2
# SERVICE INFORMATION

## 2-1. BOARD LAYOUT


PS BLOCK
CT-105 board
JK-6 board
CT-109 board
CT-106 board
CT-108 board
CT-107 board
AT-50 board
VA-65 board
CN-224 board

## 2-2. REMOVAL OF THE ROUTER PARTS



Top plate
Remove the two screws and lift up the top plate.

Rear panel
Remove both side plates and the bottom plate, remove the six screws, and pull out the rear panel.

Left plate
Remove the four screws and remove the left plate.

Front panel
Remove the four screws and pull out the front panel.

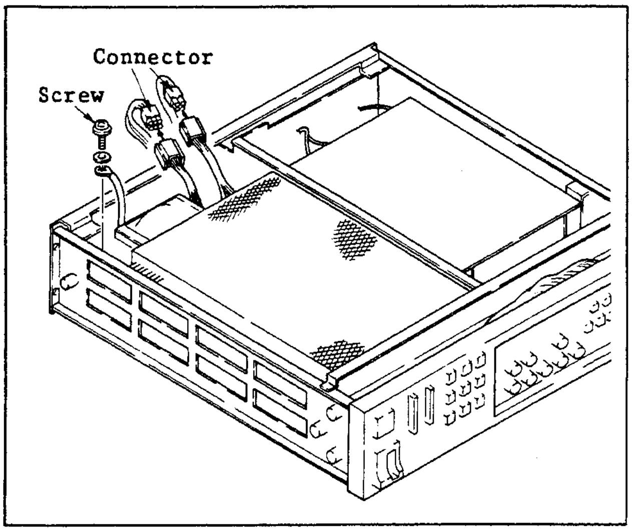
Right plate
Remove the four screws and remove the right plate.

Bottom plate
Remove the two screws which fix the bottom plate and the four screws which fix the legs, and remove the bottom plate.

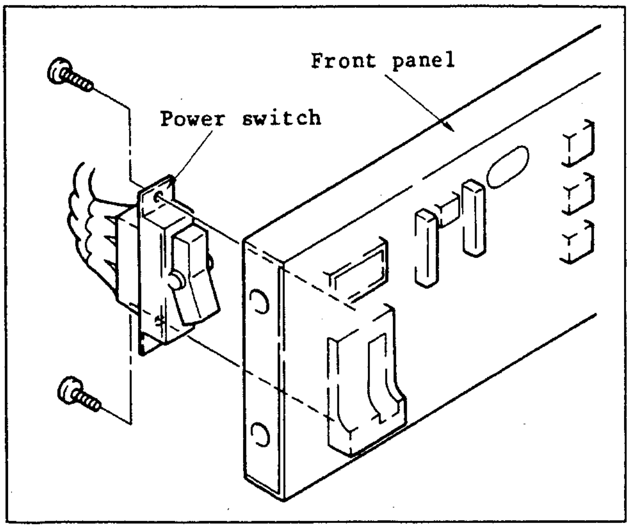
## 2-3. REPLACEMENT OF THE MAIN PARTS

### 2-3-1. Replacing the PS Block

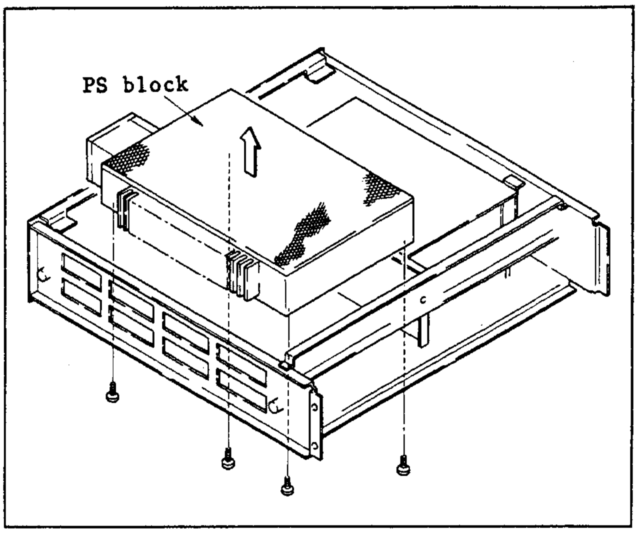
1. Remove the top plate, the bottom plate and the front panel. (Refer to 2-2. REMOVAL OF THE OUTER PARTS.)
2. Disconnect the two connectors and remove the screw as follows:



3. Remove the two screws which fix the power switch to the front panel.



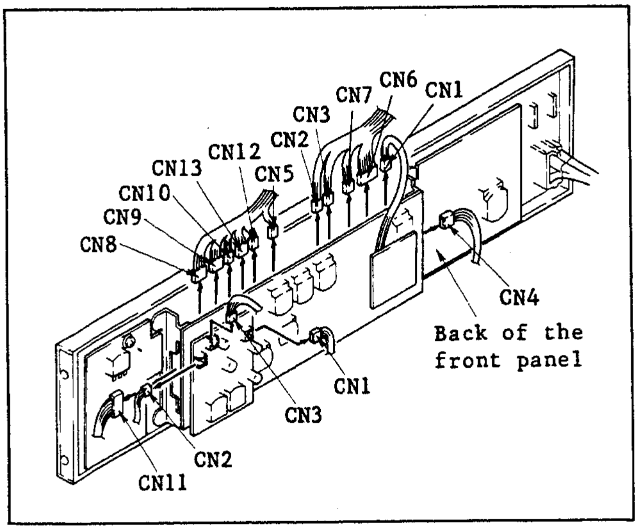
4. Remove the four screws which fix the PS block to the bottom of the unit and lift up the PS block, as shown in the figure below:



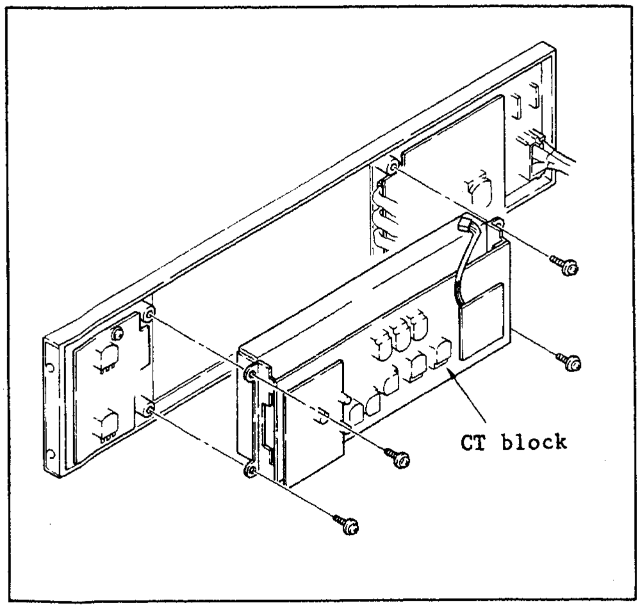
5. To install a new PS block, reverse the procedures from 1 to 4.

### 2-3-2. Replacing the CT-106 Assembly

1. Remove the front panel. (Refer to 2-2. REPLACEMENT OF THE OUTER PARTS.)
2. Disconnect CN1 to CN13 from the CT-106 board and CN1 to CN3 from the CT-108 board at the back of the front panel.


CN6
CN7
CN1
CN3
CN2
CN12
CN13
CN5
CN10
CN9
CN8
CN4
Back of the front panel
CN1
CN3
CN2
CN11

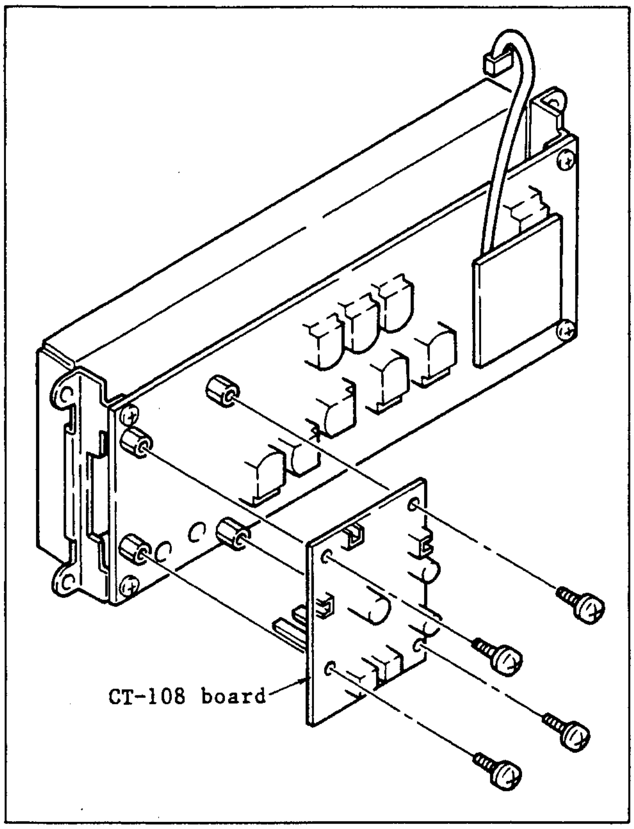
3. Remove the four screws shown below and remove the CT block.



4. To install a new CT block, reverse the procedures 1 and 2. Take care to connect the connectors correctly.

## 2-3-3. Replacing the CT-108 Board

1. Perform the procedures from 1 to 3 in Section 2-3-2 and remove the CT block.
2. Remove the four screws shown below and remove the CT-108 board.

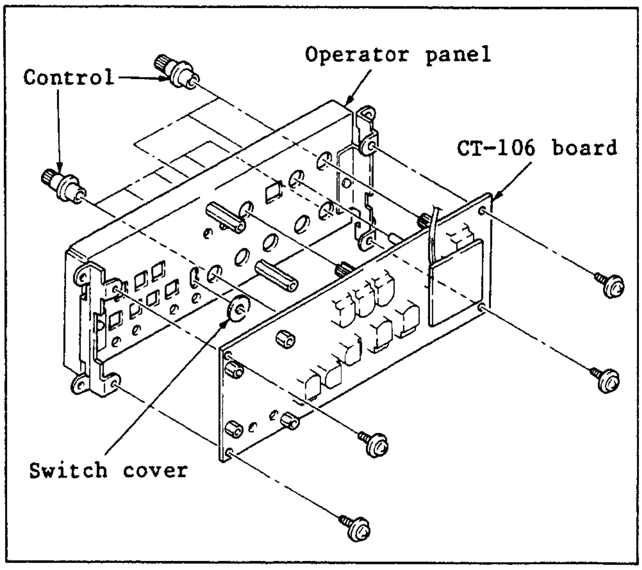

CT-108 board

3. To install a new CT-108 board, reverse the procedures 1 and 2.

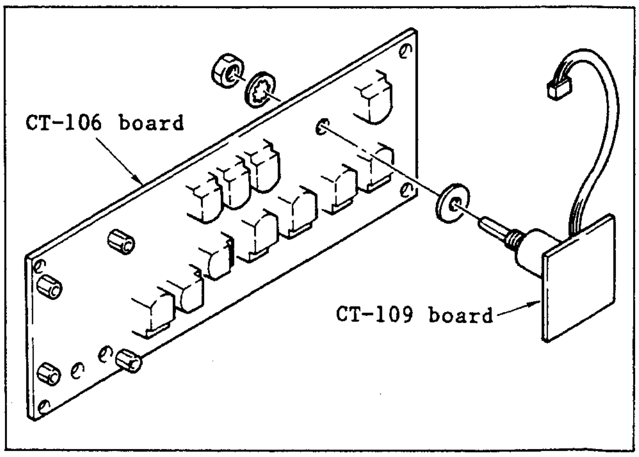
## 2-3-4. Replacement of CT-109 Board

1. Perform the procedures from 1 to 3 in Section 2-3-2, remove the CT block, and remove the CT-108 board.
2. Remove the eight controls at the front of the CT block and the four screws which fix the CT-106 board, and remove the operator panel from the CT-106 board.

**Note:** Take care not to lose the switch cover when the operator panel is removed.


Control
Operator panel
CT-106 board
Switch cover

3. Remove the nut and washer shown below and remove the CT-109 board.


CT-106 board
CT-109 board

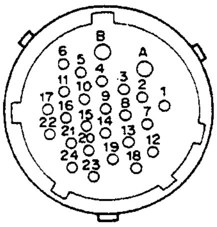
4. To install a new CT-109 board, reverse the procedures from 1 to 3.

## 2-4. CONNECTORS AND CABLES

### 2-4-1. Connector Input/Output Signals

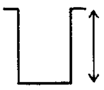
The main connector input/output signal as follows.

CAMERA (26P, FEMALE)



(EXT VIEW)

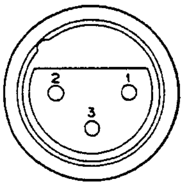
| No. | SIGNAL | SPECIFICATION |
|---|---|---|
| A | EXT DC (CCZ) OUT (X) | 10.5 to 17.0 Vdc (at 3 A) |
| B | EXT DC OUT (G) | GND for POWER |
| 1 | EN VIDEO IN (X) | VBS=1.0 Vp-p±1 dB (100%)<br>Zo=75 Ω± 5 %<br>DC=0±100 mV |
| 2 | EN/CF/CHROMA (G) | GND for ADP VIDEO |
| 3 | G/Y/Y IN (G) | GND for Y |
| 4 | G/Y/Y IN (X) | VS=1.0 Vp-p±0.5 dB (100%)<br>Zo=75 Ω±5%<br>DC=0±200 mV |
| 5 | R/R-Y/CHROMA IN (X) | V=714/700/286 mVp-p (BURST) ±2% (75% COLOR BARS)<br>Zo=75 Ω±5%<br>DC=0±200 mV |
| 6 | R/R-Y/CHROMA IN (G) | GND for R-Y |
| 7 | B/B-Y IN (X) | V=714/700 mVp-p±2% (75% COLOR BARS)<br>Zo=75 Ω±5%<br>DC=0±200 mV |
| 8 | B/B-Y IN (G) | GND for B-Y |
| 9 | MIC IN (X) | −60 dBm/−20 dBm<br>Zo≦600 Ω<br>BALANCED |
| 10 | MIC IN (Y) | |
| 11 | MIC IN (G) | GND for MIC |
| 12 | VTR START/$\overline{\text{STOP}}$ OUT TALLY IN | START: 4.5±0.5 V<br>STOP: 0+0.5 V<br>Zo≦10 kΩ |

| No. | SIGNAL | SPECIFICATION |
|---|---|---|
| 13 | BATT IND OUT/ S DATE | Zi=300 Ω<br>(Note. 1) |
| 14 | SENS (+) OUT | +12.0 V |
| 15 | REC ALARM OUT | Zi≧20 kΩ<br>(Note. 2) |
| 16 | GENLOCK OUT (G) | |
| 17 | INCOM IN/ OUT (G) | GND for AUDIO MONITOR |
| 18 | RET/PB VIDEO OUT (X) | Zi=75 Ω±5%<br>VS=1.0 Vp-p±1% (100%)<br>DC=0±200 mV |
| 19 | RET/PB VIDEO OUT (G) | GND for PB VIDEO |
| 20 | AUDIO MONITOR OUT | Zi=750 Ω (1 kHz)<br>SAVE: 4.5±0.5 V<br>STANDBY: 9.0+1.0 V −0.5 V<br>Zo≧10 kΩ |
| 21 | GENLOCK OUT (X) | Zi=75 Ω±5%<br>VBS=1.0 Vp-p |
| 22 | CF/CHROMA IN (X) |  5.0±1.0 Vp-p (CF)<br>286 mVp-p (BURST) (CHROMA)<br>Zo=1 kΩ±5% (CF)<br>75 Ω (CHROMA)<br>DC block |
| 23 | INCOM IN/ OUT (X) | Zo=600 Ω |
| 24 | INCOM IN/ OUT (Y) | |

**Note 1:** The signal input to the following pins varies according to setting of the video signal changeover switch on the rear panel of the CCU-M7.

| No. | Y/C | GBR | Y, B-Y, R-Y |
|---|---|---|---|
| 1 | EN VIDEO IN (X) | EN VIDEO IN (X) | EN VIDEO IN (X) |
| 2 | EN VIDEO/ CF IN (G) | EN VIDEO/ CF IN (G) | EN VIDEO/ CF IN (G) |
| 3 | Y IN (G) | G IN (G) | Y IN (G) |
| 4 | Y IN (X) | G IN (X) | Y IN (X) |
| 5 | CHROMA IN (X) | R IN (X) | R-Y IN (X) |
| 6 | CHROMA IN (G) | R IN (G) | R-Y IN (G) |
| 7 | ——— | B IN (X) | B-Y IN (X) |
| 8 | ——— | B IN (G) | B-Y IN (G) |

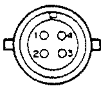
MIC (3P, FEMALE)



(EXT VIEW)

| No. | SIGNAL | SPECIFICATION |
|---|---|---|
| 1 | MIC IN (G) | GND for MIC |
| 2 | MIC IN (X) | −60 dBm<br>Zi≦600 Ω<br>BALANCED<br>(Phantom: 48 V±4 V) |
| 3 | MIC IN (Y) | |

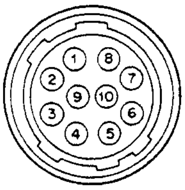
TALLY/INTERCOM (4P, FEMALE)



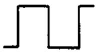
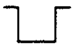
(EXT VIEW)

| No. | SIGNAL | SPECIFICATION |
|---|---|---|
| 1 | TALLY IN | Zi≧<br>(Note. 2) |
| 2 | INCOM IN/OUT (X) | Zo=600 Ω |
| 3 | INCOM IN/OUT (Y) | |
| 4 | INCOM IN/OUT (G) | GND for INCOM |

REMOTE (10P, FEMALE)



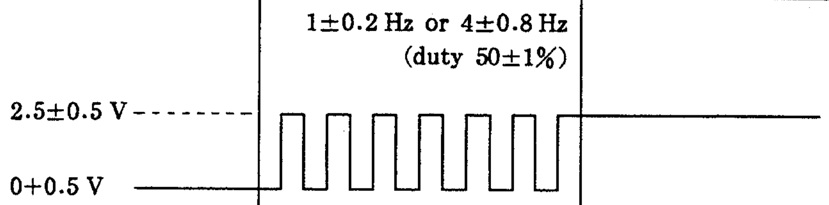
(EXT VIEW)

| No. | SIGNAL | SPECIFICATION |
|---|---|---|
| 1 | PAN CONT OUT | 0 to 5 V |
| 2 | VIDEO (REMOTE) OUT (X) | Zi≧10 kΩ<br><br>—— 4.5±0.5 Vdc<br>—— 0+0.5 Vdc |
| 3 | VIDEO (REMOTE) OUT (G) | GND for VIDEO |
| 4 | TILT CONT OUT | 0 to 5 V |
| 5 | VTR START STOP TRIG IN | Zi≧10 kΩ<br><br>— OPEN (4.5±0.5 V)<br>— 0+0.5 V |
| 6 | S DATA (REMOTE) | 0 to 5 V<br>Zi≧10 kΩ |
| 7 | ON/OFF CONT OUT | ON: +5 V<br>OFF: 0 V |
| 8 | REC TALLY IND OUT | Zi≧600 Ω |
| 9 | EXT DC OUT (G) | GND for +12 V |
| 10 | EXT DC OUT (+12 V) | 10.5 to 17.0 Vdc 3A |

Note 2: Pin 13 (BATT IND)

The VTR contains the battery voltage detector and WARNING signal generator. These circuits warn the camera of a drop of battery voltage by sending the signal shown below to pin 13.

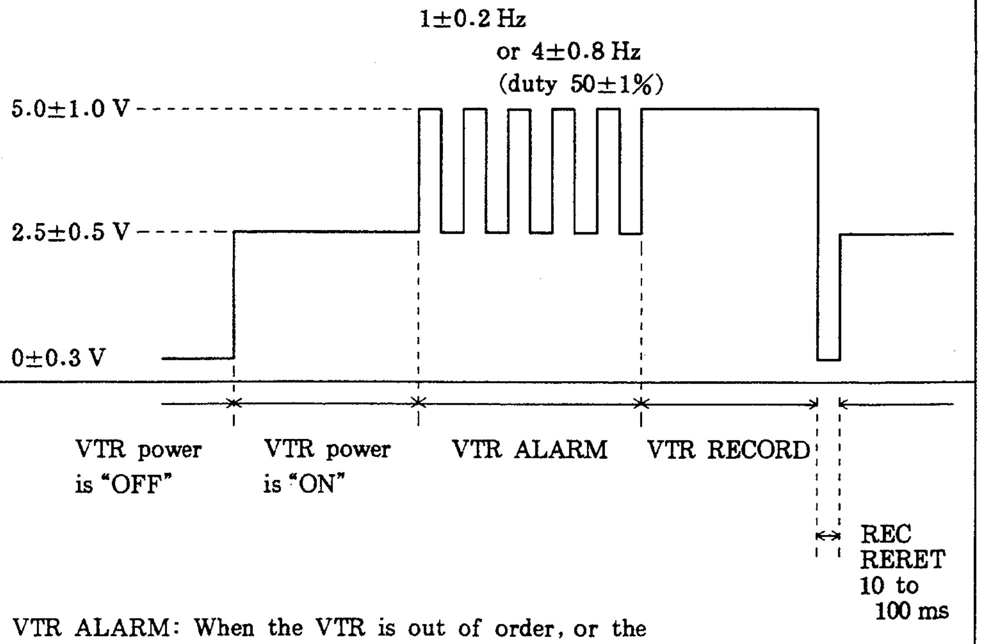
Receiving this warning, the camera make the LED (light-emitting diode) blink or light.

| VTR Battery voltage | more than 11.1 Vdc | 10.8 to 11.1 Vdc | less than 10.8 Vdc |
|---|---|---|---|
| Specification |   2.5±0.5 V<br>0+0.5 V<br>1±0.2 Hz or 4±0.8 Hz<br>(duty 50±1%) | | |
| LED in Viewfinder | Goes out | Blinks | Lights |

Note 3: Pin 15 (REC/TALLY)

The signal informing the camera of the VTR operation states appears at pin 15.

The specification is shown below.

| | |
|---|---|
| Specification |   1±0.2 Hz<br>or 4±0.8 Hz<br>(duty 50±1%)<br>5.0±1.0 V<br>2.5±0.5 V<br>0±0.3 V<br>VTR power is "OFF"<br>VTR power is "ON"<br>VTR ALARM<br>VTR RECORD<br>REC RERET 10 to 100 ms |
| VTR Operation | VTR ALARM: When the VTR is out of order, or the VTR starts recording<br>VTR RECORD: When the VTR is recording<br>VTR RESET: When the VTR stops recording |

### 2-4-2. Connections

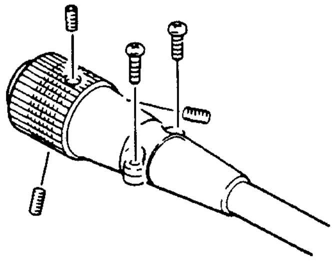
When each connector is connected to a cable, use the connector listed below or equivalent.

| Connector Name | Connector of Cable to be connected |
|---|---|
| CAMERA<br>(26 P, FEMALE) | 1-564-183-00<br>CONNECTOR, 26 P, MALE<br>• For 26 P-CAMERA use<br>CCZ-2 (2 m)<br>≀<br>CCZ-100 (100 m) |
| MIC<br>(3 P, FEMALE) | 1-516-125-00<br>XLR-3 P, MALE<br>Canon XLR-3-12 C equallity |
| TALLY/<br>INTERCOM<br>(4 P, FMALE) | 1-555-243-00<br>CABLE, CONNECTOR, 4 P |
| REMOTE<br>(10 P, FEMALE) | 1-506-522-11<br>PLUG, CONNECTOR, ROUND<br>10 P, MALE<br>HIROSE HR10A-10 P-10 P equallity |

### 2-4-3. Disconnection of CCZ Connectors

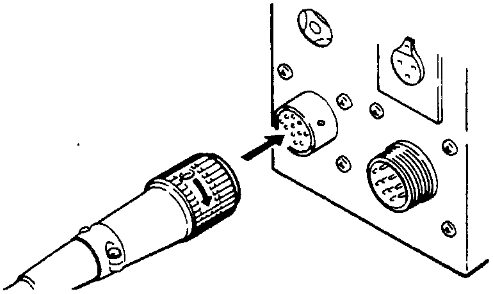
Step 1.

Remove the three hexagonal setscrews and the two (+) setscrews.



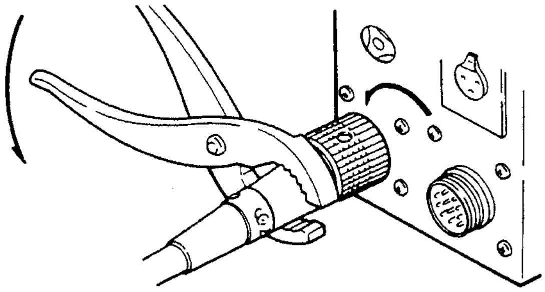
Step 2.

Fix the CCZ connector at the camera adaptor or VTR connector.



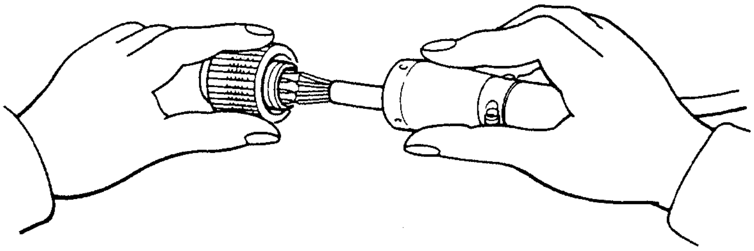
Step 3.

Rotate the CCZ connector to counterclockwise by the plier and loosen it.



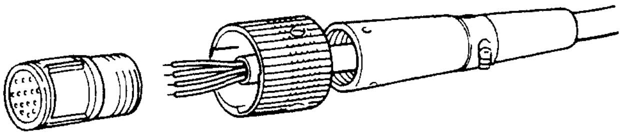
Step 4.

It can be removed by hand and unsolder.



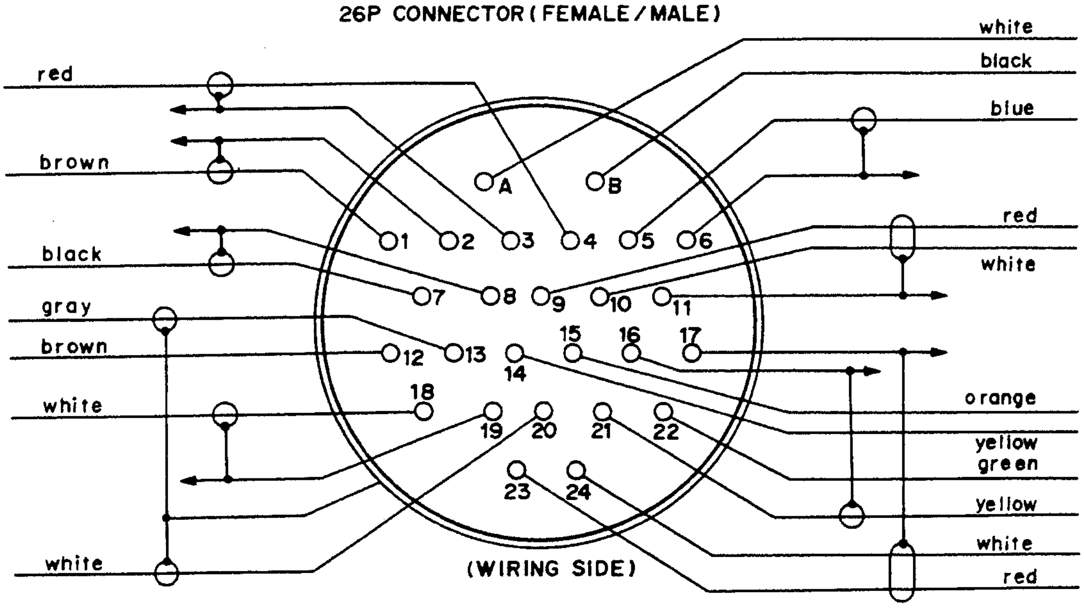
Step 5.

It can be broken up as shown in Figure.

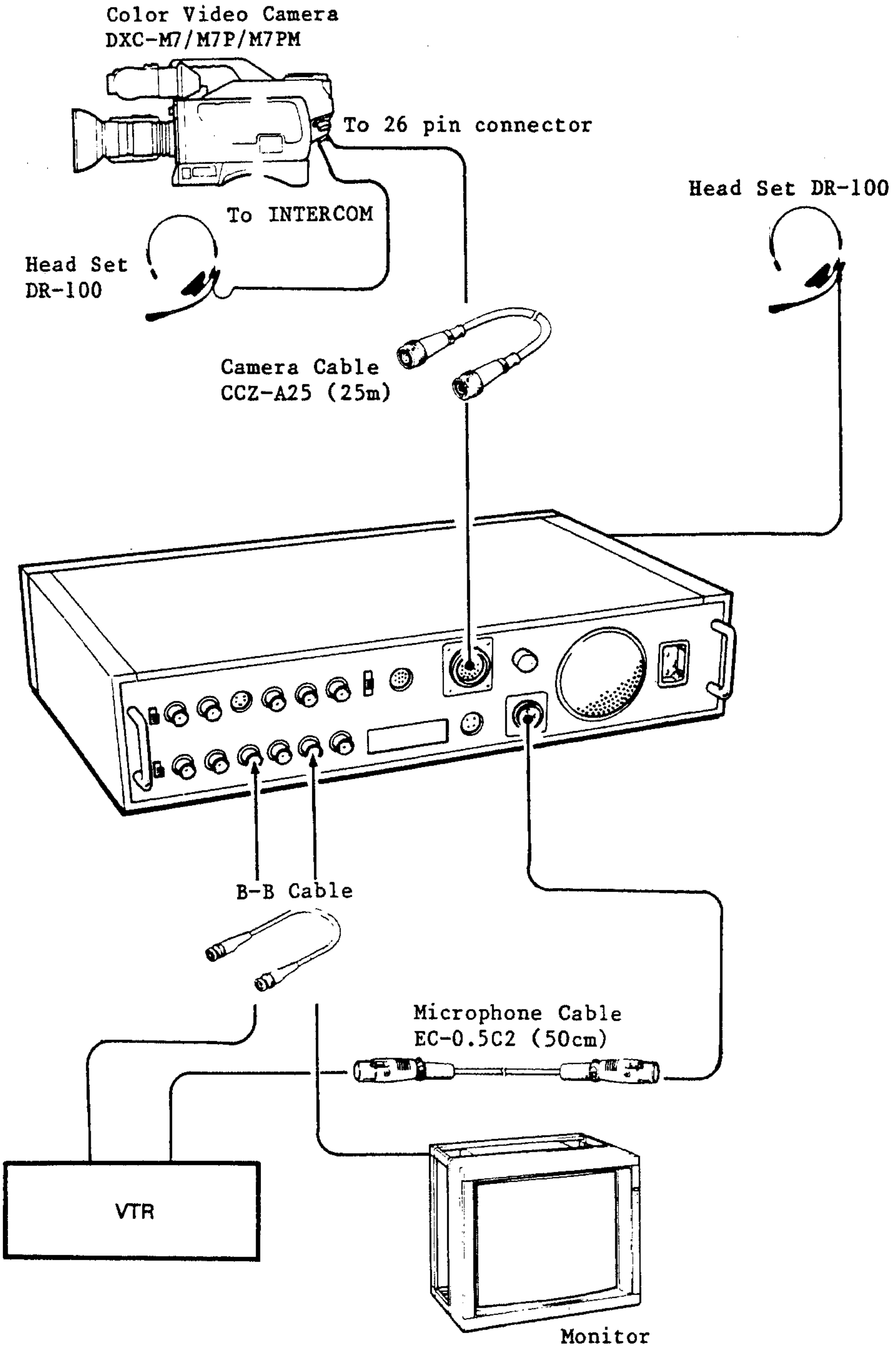


## 2-4-4. Cable Wiring

CCZ-An cable (Wiring diagram)


26P CONNECTOR (FEMALE/MALE)
red
brown
black
gray
brown
white
white
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
(WIRING SIDE)
white
black
blue
red
white
orange
yellow green
yellow
white
red

## 2-5. SYSTEM EXPANSION


Color Video Camera
DXC-M7/M7P/M7PM
To 26 pin connector
To INTERCOM
Head Set
DR-100
Head Set DR-100
Camera Cable
CCZ-A25 (25m)
B-B Cable
Microphone Cable
EC-0.5C2 (50cm)
VTR
Monitor

# SECTION 3
# ALIGNMENT

## 3-1. PREPARATION

### 3-1-1. Equipment Required

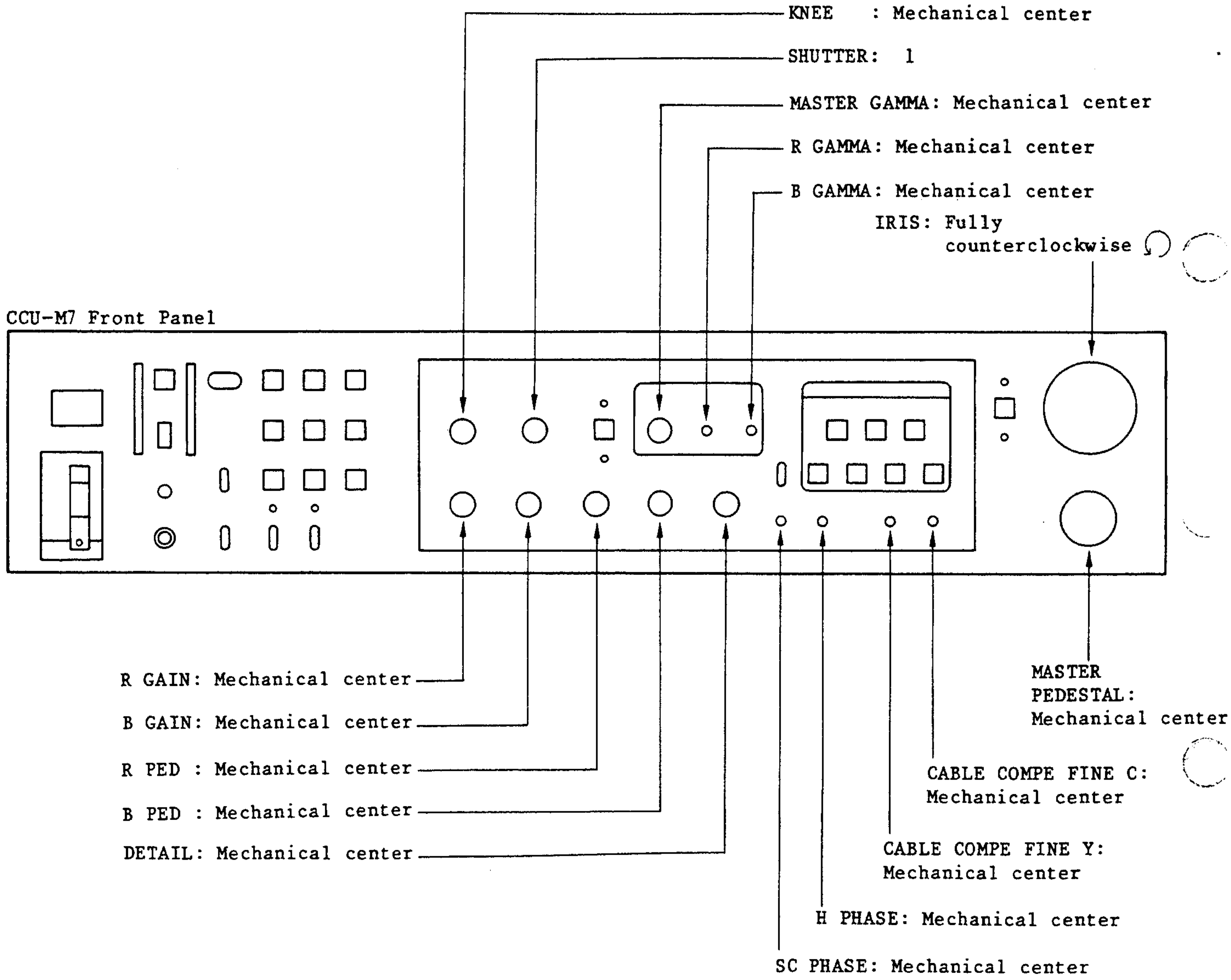
- DC voltmeter
- DC ammeter (5A or greater)
- Stabilized DC power supply (+15V, 4 to 5A)
- Potentiometer (rated at 0 to 20ohm, 5A or greater)
- Oscilloscope (with bandwidth of 30MHz or higher)
- Low-frequency signal generator (1-kHz sine wave)
- Test signal generator (used signal: sweep signal with sync)
- CCZ cables:
  Two CCZ-A25 cables, 25m
  three CCZ-A100 cables, 100m
  or
  one CCZ-A25 cable, 25m
  one CCZ-A50 cable, 50m
  three CCZ-A100 cables, 100m
- Two cable extension connectors (CCZZ-1E)
- Waveform monitor
- Video camera (DXC-M7/M7P/M7PM), fully calibrated
- Color monitor

### 3-1-2. CCZ Cable Lengths

Adjusting the CCU-M7/M7P requires CCZ cables of the following lengths:
25, 50, 100, 200, and 300m

Use cable extension connector CCZZ-1E to get a cable length of 50m (in case CCZ-A50 is unavailable), 200m, or 300m.

### 3-1-3. Initial Switch Setting


KNEE : Mechanical center
SHUTTER: 1
MASTER GAMMA: Mechanical center
R GAMMA: Mechanical center
B GAMMA: Mechanical center
IRIS: Fully counterclockwise
CCU-M7 Front Panel
R GAIN: Mechanical center
B GAIN: Mechanical center
R PED : Mechanical center
B PED : Mechanical center
DETAIL: Mechanical center
MASTER PEDESTAL: Mechanical center
CABLE COMPE FINE C: Mechanical center
CABLE COMPE FINE Y: Mechanical center
H PHASE: Mechanical center
SC PHASE: Mechanical center

### 3-1-4. How to Create Jigs

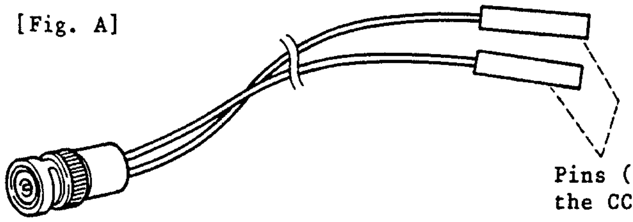
1. Preparation

- Two BNC connectors (Sony parts number 1-508-898-00)
- Four leads with different colors (to distinguish signal and ground lines from each other)
- Four pins (inserts) that match a CCZ connector (female)

2. Assembly

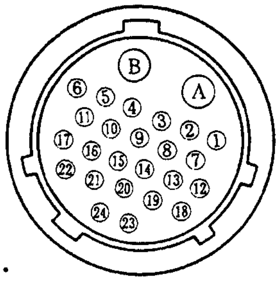
Assemble two jigs as illustrated.

[Fig. A]



Pins (insert) that match the CCZ female connector.

CCZ Connector (female)
- EXT VIEW -


B
A
6
5
4
3
2
1
11
10
9
8
7
17
16
15
14
13
12
22
21
20
19
18
24
23

## 3-2. Power Supply Adjustment

### Step 1. +9V adjustment

. Required equipment

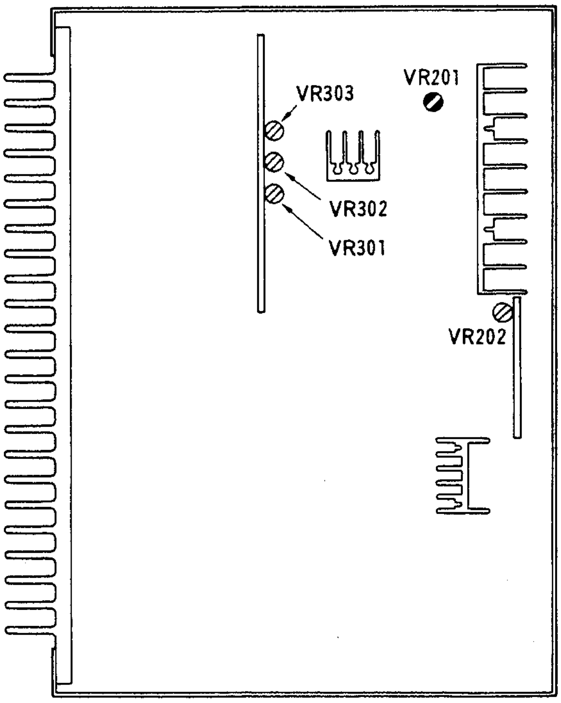
DC voltmeter

. Adjustment procedure

Test point : Pin 4 of CN1 (GND: Pin 3)/AT-50 board

Adjustment point:⊘VR201/PS BLOCK

Specification : +9.0±0.01Vdc


VR303
VR201
VR302
VR301
VR202

PS BLOCK (TOP VIEW)

**Step 2. +5V LED adjustment**

. Required equipment

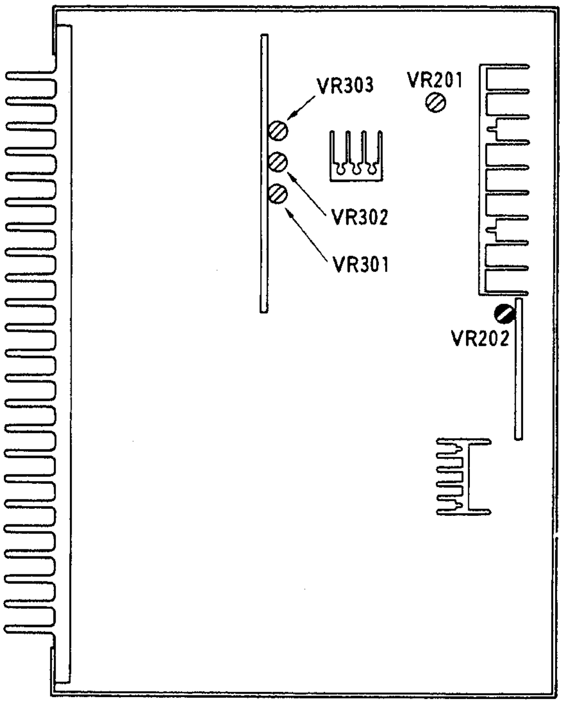
| |
|---|
| DC voltmeter |

. Adjustment procedure

Test point : Pin 6 of CN1 (GND: Pin 5)/AT-50 board

Adjustment point: ⊘ VR202/PS BLOCK

Specification : +5.0±0.01Vdc


VR303
VR201
VR302
VR301
VR202

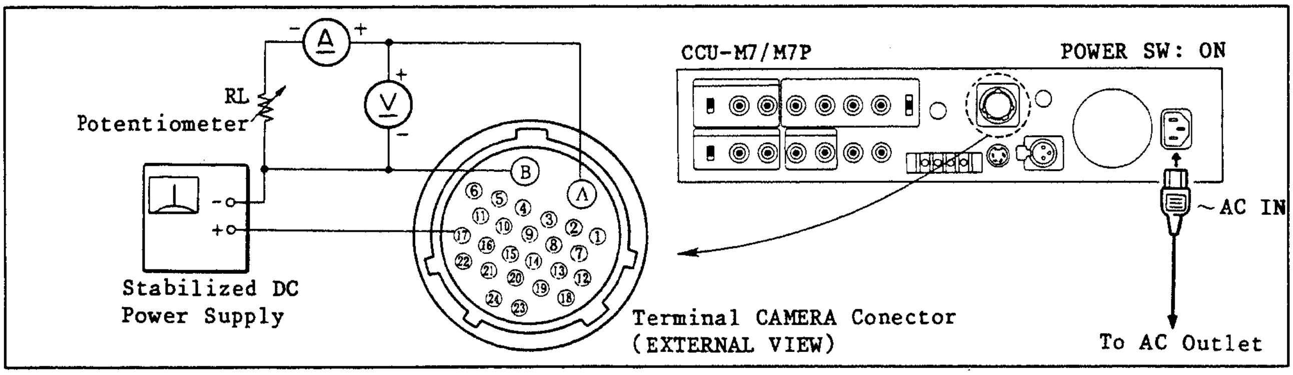
PS BLOCK (TOP VIEW)

## Step 3. Output voltage adjustment 1

. Required equipment

DC voltmeter, DC ammeter (5A or greater), stabilized DC power supply, potentiometer (0 to 20ohm, 5A or greater)

. Test set-up

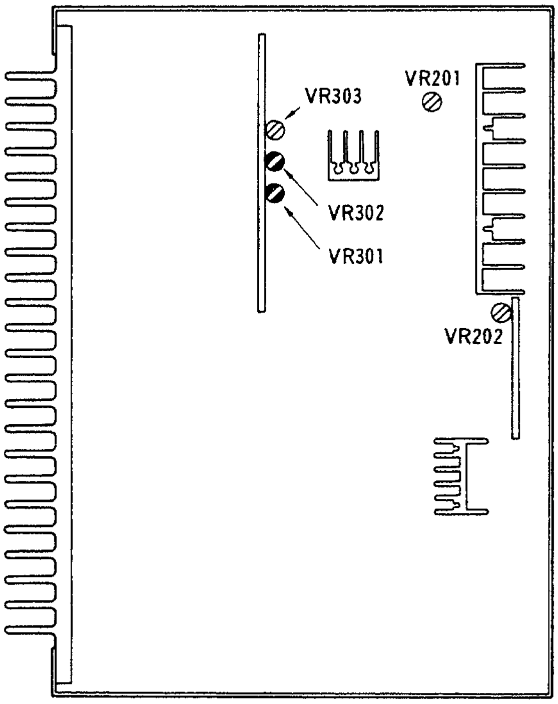

A
-
+
V
+
-
RL
Potentiometer
-
+
Stabilized DC
Power Supply
B
A
CCU-M7/M7P
POWER SW: ON
~AC IN
Terminal CAMERA Conector
(EXTERNAL VIEW)
To AC Outlet

. Preparation

⊘ VR301/PS BLOCK, fully counterclockwise ↺

. Adjustment procedure

1. Set the output of the stabilized power supply to 15 V, adjust potentiometer RL for a load current of 4 A.
2. Adjust ⊘ VR302/PS BLOCK for an output voltage of 28.2±0.1V
3. Repeat the above two steps until the output voltage is 28.2±0.1V at a load current of 4A.


VR303
VR201
VR302
VR301
VR202

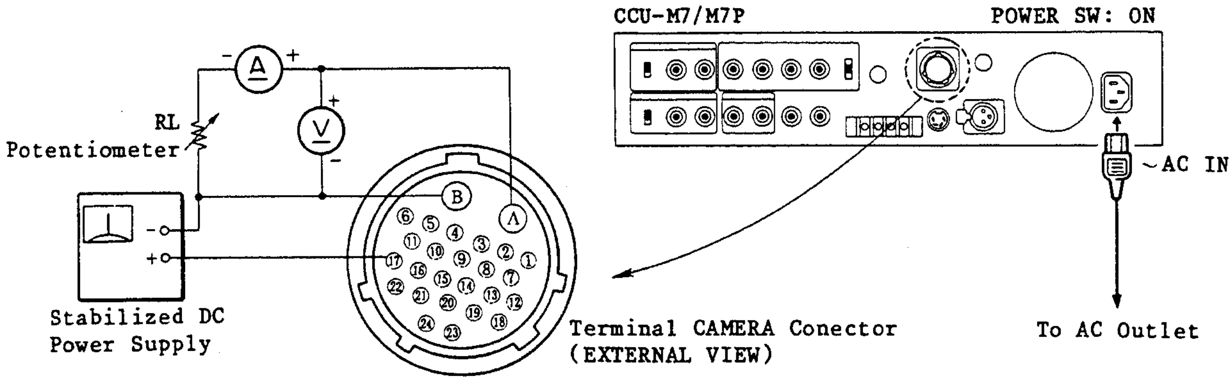
PS BLOCK (TOP VIEW)

### Step 4. Limiter adjustment

. Required equipment

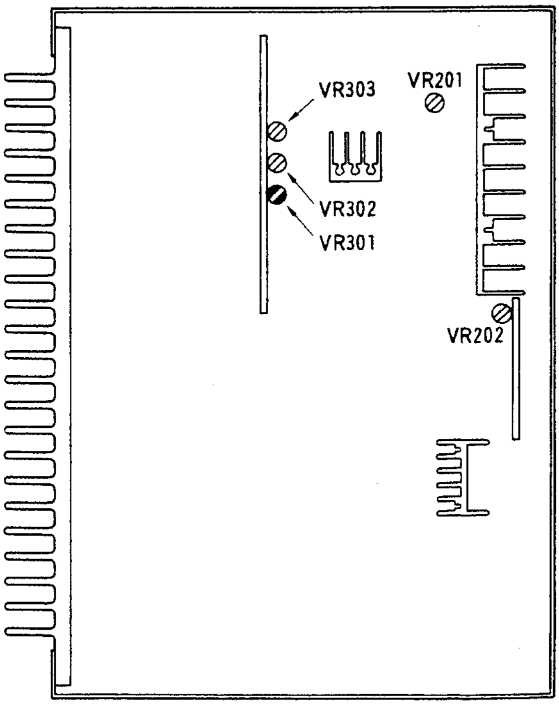
| |
|---|
| DC voltmeter, DC ammeter (5A or greater), stabilized DC power supply, potentiometer (0 to 20ohm, 5A or greater) |

. Test set-up


CCU-M7/M7P
POWER SW: ON
A
V
RL
Potentiometer
B
A
Stabilized DC
Power Supply
Terminal CAMERA Conector
(EXTERNAL VIEW)
~AC IN
To AC Outlet

. Adjustment procedure

1. Set the output of the stabilized power supply to 15V, and adjust potentiometer RL for a load current of 4A.
2. Adjust ⊘VR301/PS BLOCK so that the output voltage is 0.1 to 0.2V lower than the value set at step 3 (output voltage adjustment 1).
3. Repeat the above two steps until the output voltage at a load current of 4.8A is 0.1 to 0.2V lower than the value set at step 3 (output voltage adjustment 1).


VR303
VR201
VR302
VR301
VR202

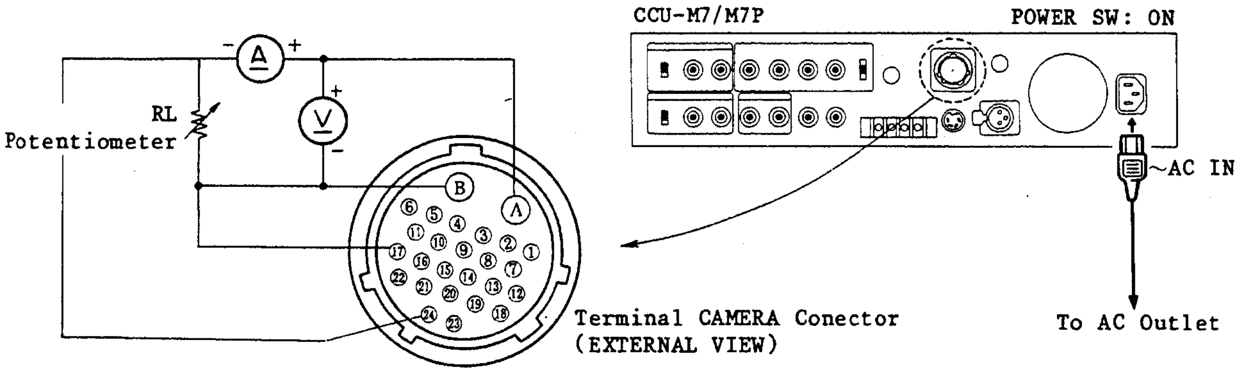
PS BLOCK (TOP VIEW)

## Step 5. Output voltage adjustment 2

. Required equipment

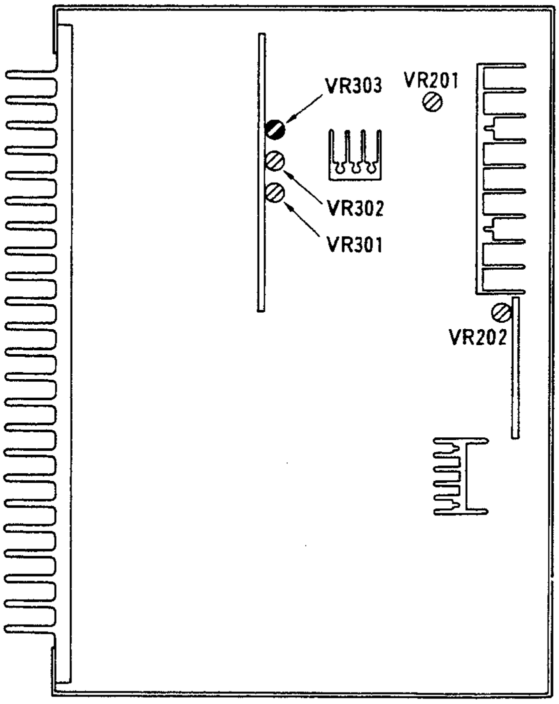
| |
|---|
| DC voltmeter, DC ammeter (5A or greater), potentiometer (0 to 20ohm, 5A or greater) |

. Test set-up


CCU-M7/M7P
POWER SW: ON
A
V
RL
Potentiometer
B
A
~AC IN
Terminal CAMERA Conector
(EXTERNAL VIEW)
To AC Outlet

. Adjustment procedure

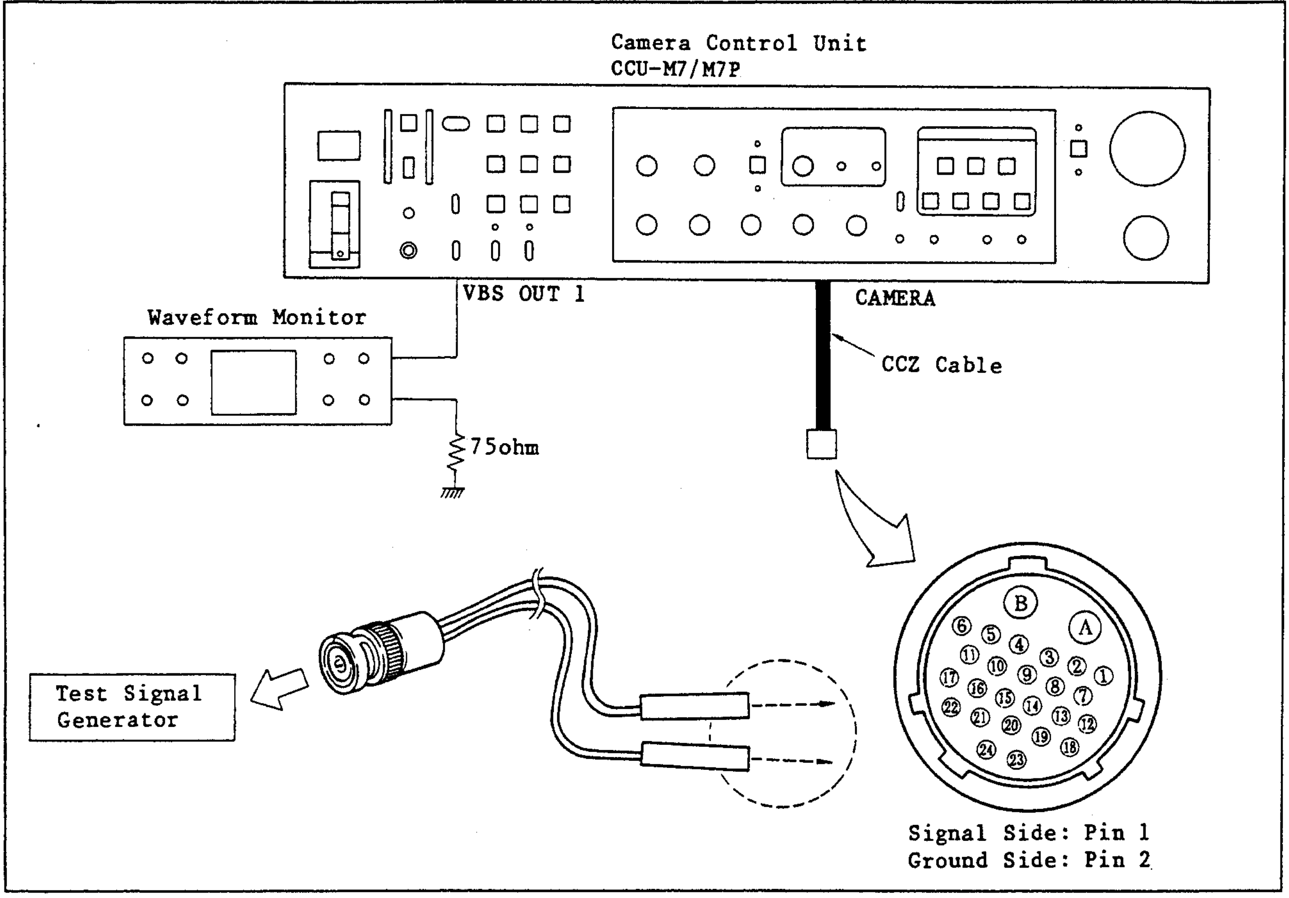
1. Adjust potentiometer RL for a load current of 4A.
2. Adjust ⊘ VR303/PS BLOCK for an output voltage of 13.1±0.1V.
3. Repeat the above two steps until the output voltage of 13.1±0.1V at a load current of 4A.


VR303
VR201
VR302
VR301
VR202

PS BLOCK (TOP VIEW)

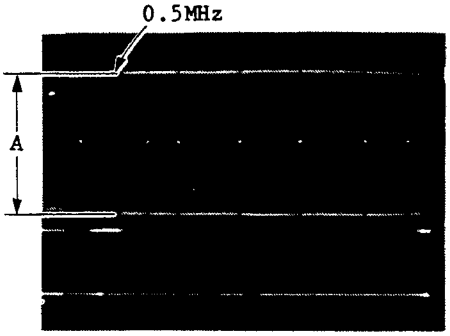
## 3-3. VBS Video Amplifier Adjustment

. Test set-up


Camera Control Unit
CCU-M7/M7P
VBS OUT 1
CAMERA
Waveform Monitor
CCZ Cable
75ohm
Test Signal
Generator
B
A
Signal Side: Pin 1
Ground Side: Pin 2

. Video signal used

Output signal/test signal generator: Sweep signal with sync



* Measure and note down level A at 0.5 MHz.

## Step 1. VBS video level adjustment

. Setting

| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 25m |

. Preparation

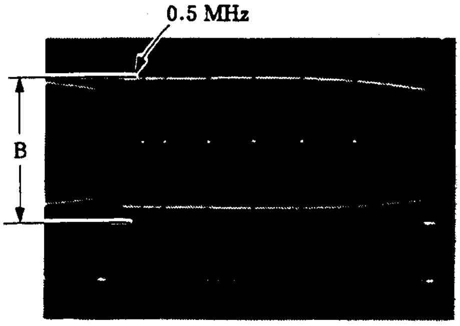
CABLE COMP switch/rear panel, 25m

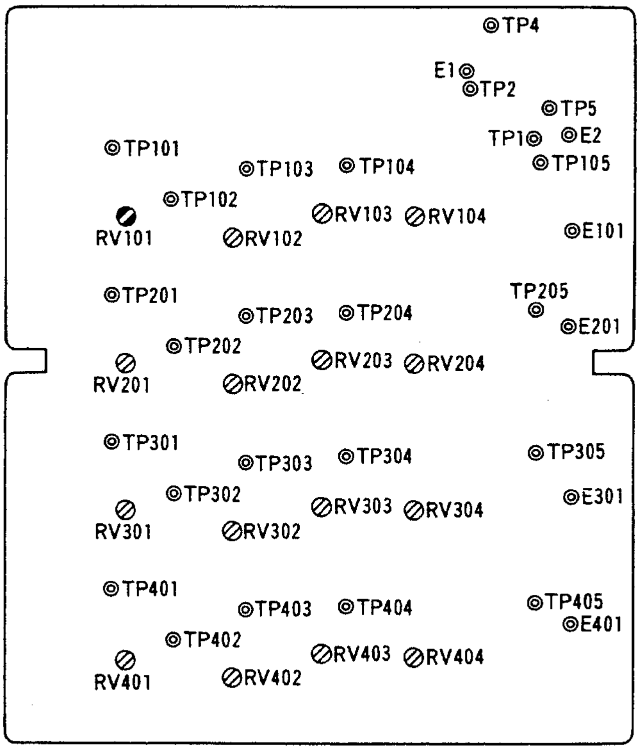
. Adjustment procedure

Test point : Terminal VBS OUT 1/rear panel

Adjustment point: ⊘RV101/VA-65 board

Specification : B = A±2% (where A means the level of the output signal/test signal generator at 0.5MHz)




TP4
E1
TP2
TP5
TP1
E2
TP101
TP103
TP104
TP105
TP102
RV101
RV102
RV103
RV104
E101
TP201
TP203
TP204
TP205
E201
TP202
RV201
RV202
RV203
RV204
TP301
TP303
TP304
TP305
TP302
RV301
RV302
RV303
RV304
E301
TP401
TP403
TP404
TP405
E401
TP402
RV401
RV402
RV403
RV404

VA-65 BOARD (COMPONENT SIDE)

## Step 2. VBS video cable compensational adjustment 1

. Setting

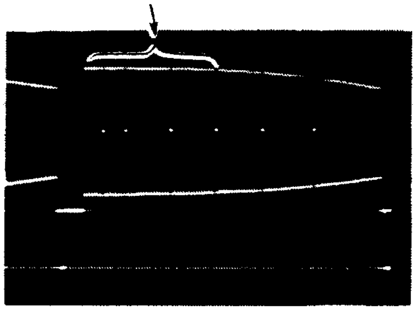
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 100m |

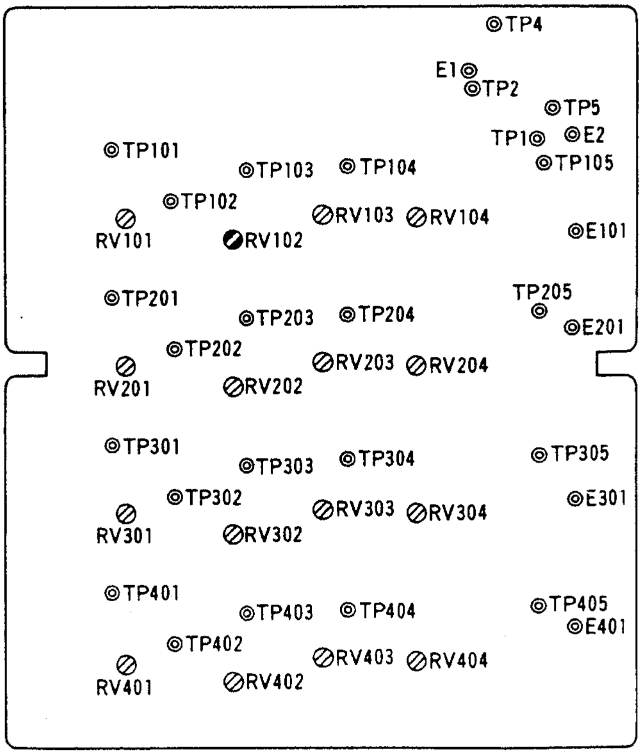
. Preparation

| |
|---|
| CABLE COMP switch/rear panel, 100m |

. Adjustment procedure

Test point : Terminal VBS OUT 1/rear panel
Adjustment point: ⊘RV102/VA-65 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.





◎TP4
E1◎
◎TP2
◎TP5
TP1◎
◎E2
◎TP101
◎TP103
◎TP104
◎TP105
◎TP102
RV101
⊘RV102
⊘RV103
⊘RV104
◎E101
◎TP201
◎TP203
◎TP204
TP205
◎E201
◎TP202
RV201
⊘RV202
⊘RV203
⊘RV204
◎TP301
◎TP303
◎TP304
◎TP305
◎TP302
RV301
⊘RV302
⊘RV303
⊘RV304
◎E301
◎TP401
◎TP403
◎TP404
◎TP405
◎E401
◎TP402
RV401
⊘RV402
⊘RV403
⊘RV404

VA-65 BOARD (COMPONENT SIDE)

**Step 3. VBS video cable compensational adjustment 2**

. Setting

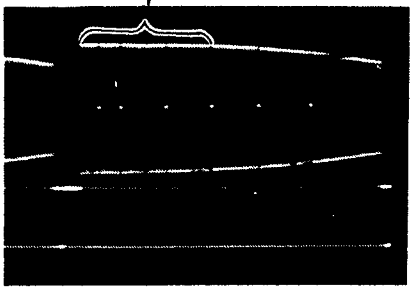
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 200m |

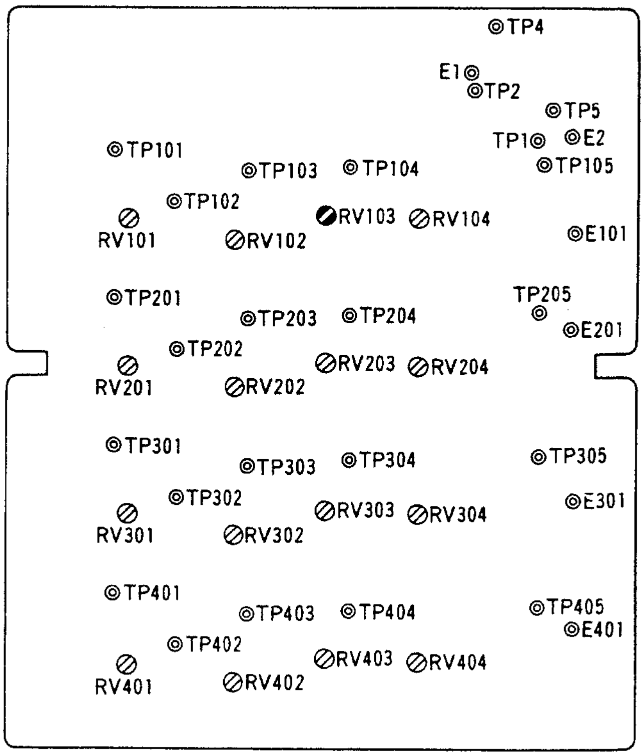
. Preparation

CABLE COMP switch/rear panel, 200m

. Adjustment procedure

Test point : Terminal VBS OUT 1/rear panel
Adjustment point: ⊘RV103/VA-65 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.




TP4
E1
TP2
TP5
TP1
E2
TP101
TP103
TP104
TP105
TP102
RV101
RV102
RV103
RV104
E101
TP201
TP203
TP204
TP205
E201
TP202
RV201
RV202
RV203
RV204
TP301
TP303
TP304
TP305
TP302
RV301
RV302
RV303
RV304
E301
TP401
TP403
TP404
TP405
E401
TP402
RV401
RV402
RV403
RV404

VA-65 BOARD (COMPONENT SIDE)

## Step 4: VBS video cable compensational adjustment 3

. Setting

| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 300m |

. Preparation

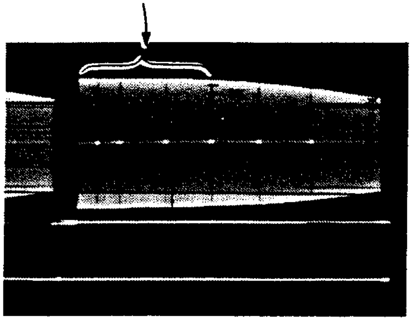
CABLE COMP switch/rear panel, 300 m

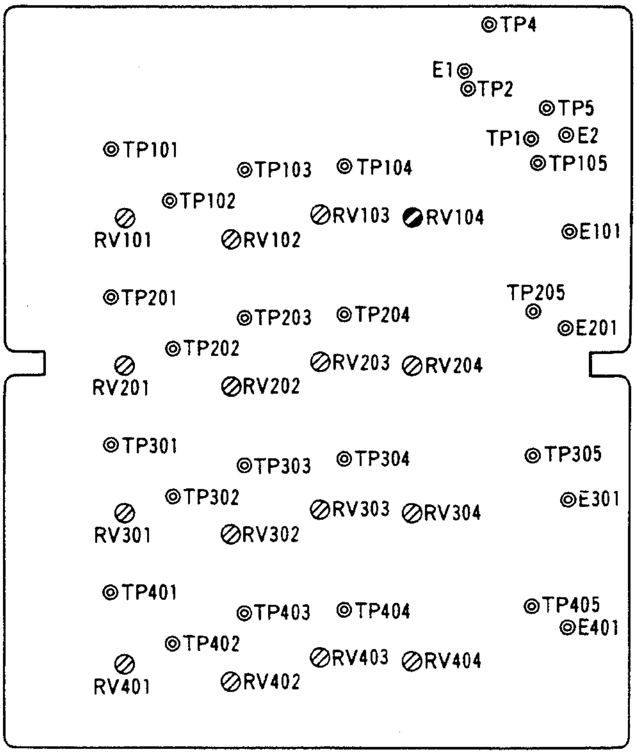
. Adjustment procedure

Test point : Terminal VBS OUT 1/rear panel

Adjustment point: ● RV104/VA-65 board

Specification : The waveform must be flat over a range from 0MHz to 6MHz.

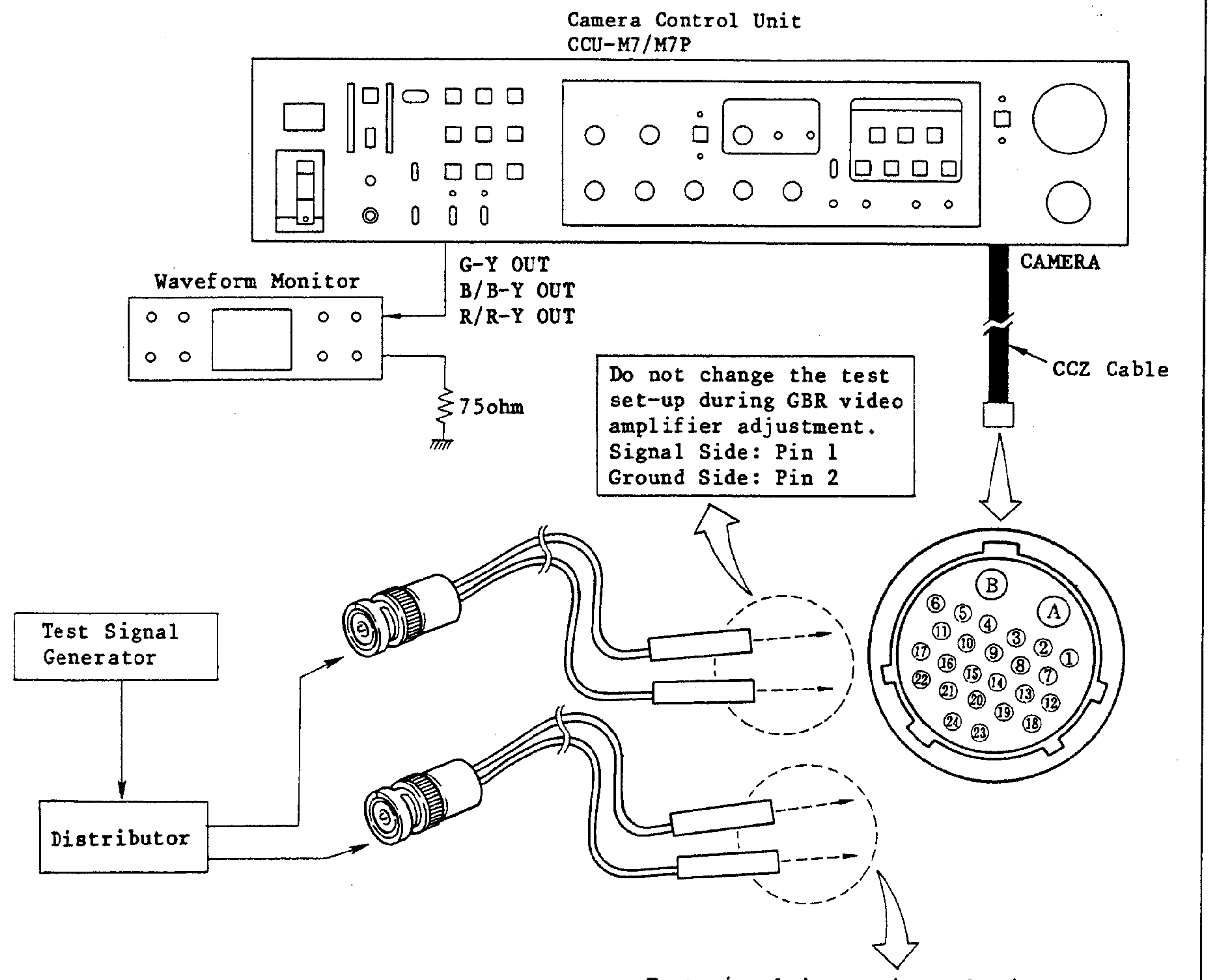



TP4
E1
TP2
TP5
TP1
E2
TP101
TP103
TP104
TP105
TP102
RV103
RV104
E101
RV101
RV102
TP201
TP205
TP203
TP204
E201
TP202
RV203
RV204
RV201
RV202
TP301
TP303
TP304
TP305
TP302
RV303
RV304
E301
RV301
RV302
TP401
TP403
TP404
TP405
E401
TP402
RV403
RV404
RV401
RV402

PS BLOCK (TOP VIEW)

## 3-4. GBR VIDEO AMPLIFIER ADJUSTMENT

. Test set-up


Camera Control Unit
CCU-M7/M7P
Waveform Monitor
G-Y OUT
B/B-Y OUT
R/R-Y OUT
75ohm
CAMERA
CCZ Cable
Test Signal Generator
Distributor
B
A

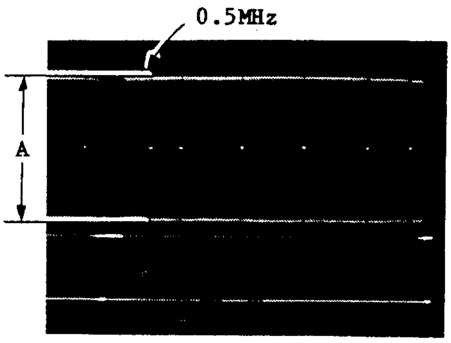
Do not change the test set-up during GBR video amplifier adjustment.
Signal Side: Pin 1
Ground Side: Pin 2

. Test signal input pin number/CCZ connector

| | Signal pin number | Ground pin number |
|---|---|---|
| G-ch | Pin 4 | Pin 3 |
| B-ch | Pin 7 | Pin 8 |
| R-ch | Pin 5 | Pin 6 |

. Video signal used

Distributor output signal: Sweep signal with



* Measure and note down level A at 0.5MHz.

## Step 1. GBR video level adjustment

. Setting

| Equipment: Waveform monitor (WFM) | CCZ cable length: 25m |
|---|---|

. Preparation

1. Test signal input pin number/CCZ connector

| | Signal pin number | Ground pin number |
|---|---|---|
| G-ch | Pin 4 | Pin 3 |
| B-ch | Pin 7 | Pin 8 |
| R-ch | Pin 5 | Pin 6 |

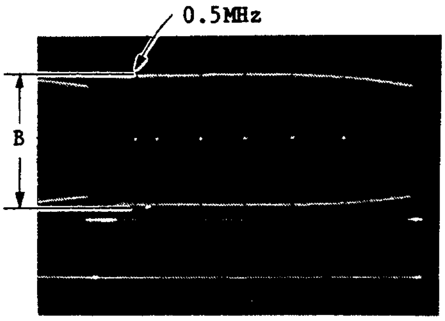
2. CABLE COMP switch/rear panel, 25m
3. Y/C GBR Y, B-Y, R-Y switches/rear panel, GBR

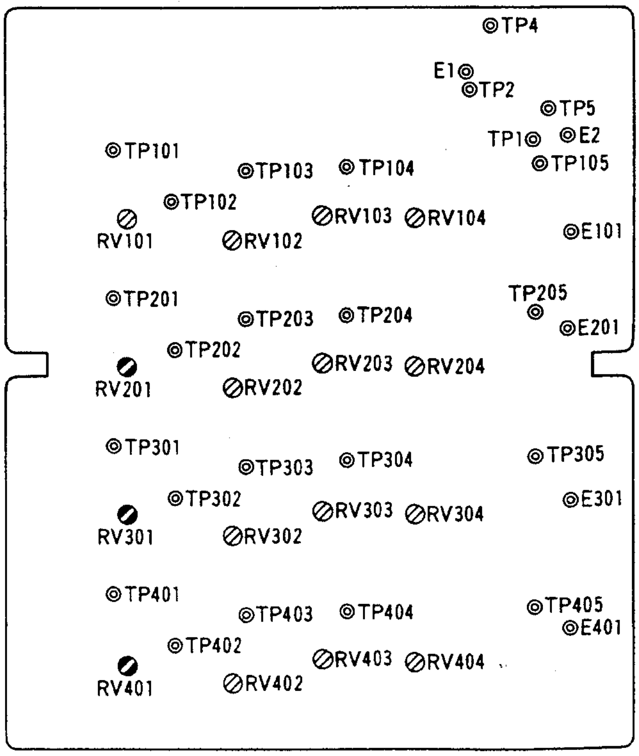
. Adjustment procedure

Make the following adjustments for each of the G-ch, B-ch, and R-ch amplifiers.

| | Test point/ rear panel | Adjustment point/ VA-65 board | Specification |
|---|---|---|---|
| G-ch | Terminal G/Y OUT | ⊘ RV301 | B = A±2% |
| B-ch | Terminal B/B-Y OUT | ⊘ RV401 | B = A±2% |
| R-ch | Terminal R/R-Y OUT | ⊘ RV201 | B = A±2% |

(Where A means the level of the distributor output signal at 0.5MHz)




TP4
E1
TP2
TP5
TP1
E2
TP101
TP103
TP104
TP105
TP102
RV101
RV102
RV103
RV104
E101
TP201
TP203
TP204
TP205
E201
TP202
RV201
RV202
RV203
RV204
TP301
TP303
TP304
TP305
TP302
RV301
RV302
RV303
RV304
E301
TP401
TP403
TP404
TP405
E401
TP402
RV401
RV402
RV403
RV404

VA-65 BOARD (COMPONENT SIDE)

## Step 2. GBR video cable compensational adjustment 1

. Setting

| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 100m |

. Preparation

1. Test signal input pin number/CCZ connector

| | Signal pin number | Ground pin number |
|---|---|---|
| G-ch | Pin 4 | Pin 3 |
| B-ch | Pin 7 | Pin 8 |
| R-ch | Pin 5 | Pin 6 |

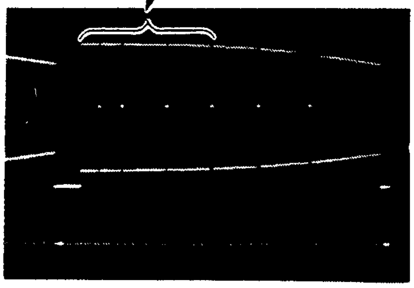
2. CABLE COMP switch/rear panel, 100m
3. Y/C GBR Y, B-Y, R-Y switches/rear panel, GBR

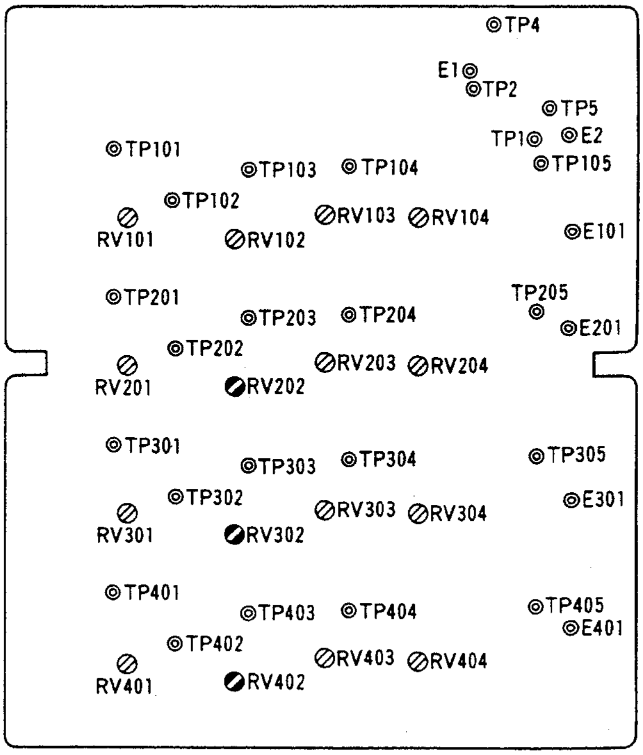
. Adjustment procedure

Make the following adjustments for each of the G-ch, B-ch, and R-ch amplifiers.

| | Test point/ VA-65 board | Adjustment point/ VA-65 board | Specification |
|---|---|---|---|
| G-ch | Terminal G/Y OUT | ⊘RV302 | The waveform must be flat over a range from 0MHz to 6MHz. |
| B-ch | Terminal B/B-Y OUT | ⊘RV402 | |
| R-ch | Terminal R/R-Y OUT | ⊘RV202 | |

The waveform must be flat over a range from 0MHz to 6MHz.





TP4
E1
TP2
TP5
TP1
E2
TP101
TP103
TP104
TP105
TP102
RV101
RV102
RV103
RV104
E101
TP201
TP203
TP204
TP205
E201
TP202
RV201
RV202
RV203
RV204
TP301
TP303
TP304
TP305
TP302
RV301
RV302
RV303
RV304
E301
TP401
TP403
TP404
TP405
E401
TP402
RV401
RV402
RV403
RV404

PS BLOCK (TOP VIEW)

## Step 3. GBR video cable compensational adjustment 2

. Setting

| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 200m |

. Preparation

1. Test signal input pin number/CCZ connector

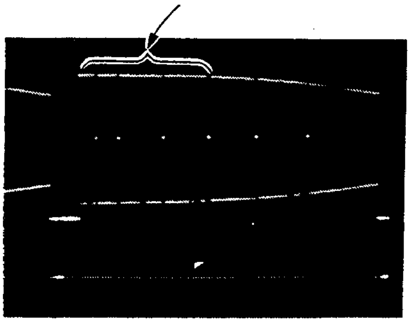
| | Signal pin number | Ground pin number |
|---|---|---|
| G-ch | Pin 4 | Pin 3 |
| B-ch | Pin 7 | Pin 8 |
| R-ch | Pin 5 | Pin 6 |

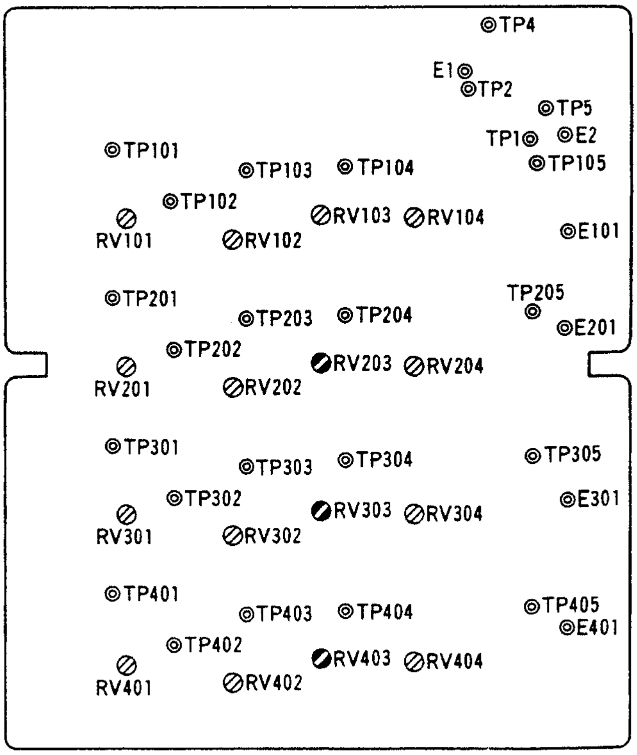
2. CABLE COMP switch/rear panel, 200m
3. Y/C GBR Y, B-Y, R-Y switches/rear panel, GBR

. Adjustment procedure

Make the following adjustments for each of the G-ch, B-ch, and R-ch amplifiers.

| | Test point/ VA-65 board | Adjustment point/ VA-65 board | Specification |
|---|---|---|---|
| G-ch | Terminal G/Y OUT | ⊘ RV303 | The waveform must be flat over a range from 0MHz to 6MHz. |
| B-ch | Terminal B/B-Y OUT | ⊘ RV403 | |
| R-ch | Terminal R/R-Y OUT | ⊘ RV203 | |


The waveform must be flat over a range from 0MHz to 6MHz.


◎TP4
E1◎
◎TP2
◎TP5
TP1◎
◎E2
◎TP105
◎TP101
◎TP103
◎TP104
◎TP102
⊘RV101
⊘RV103
⊘RV104
⊘RV102
◎E101
◎TP201
◎TP203
◎TP204
TP205◎
◎E201
◎TP202
⊘RV201
⊘RV203
⊘RV204
⊘RV202
◎TP301
◎TP303
◎TP304
◎TP305
◎TP302
⊘RV301
⊘RV303
⊘RV304
◎E301
⊘RV302
◎TP401
◎TP403
◎TP404
◎TP405
◎E401
◎TP402
⊘RV401
⊘RV403
⊘RV404
⊘RV402

VA-65 BOARD (COMPONENT SIDE)

## Step 4: GBR video cable compensational adjustment 3

. Setting

| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 300m |

. Preparation

1. Test signal input pin number/CCZ connector

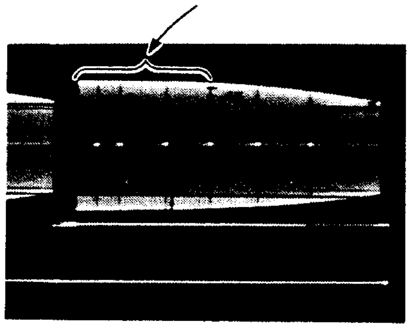
| | Signal pin number | Ground pin number |
|---|---|---|
| G-ch | Pin 4 | Pin 3 |
| B-ch | Pin 7 | Pin 8 |
| R-ch | Pin 5 | Pin 6 |

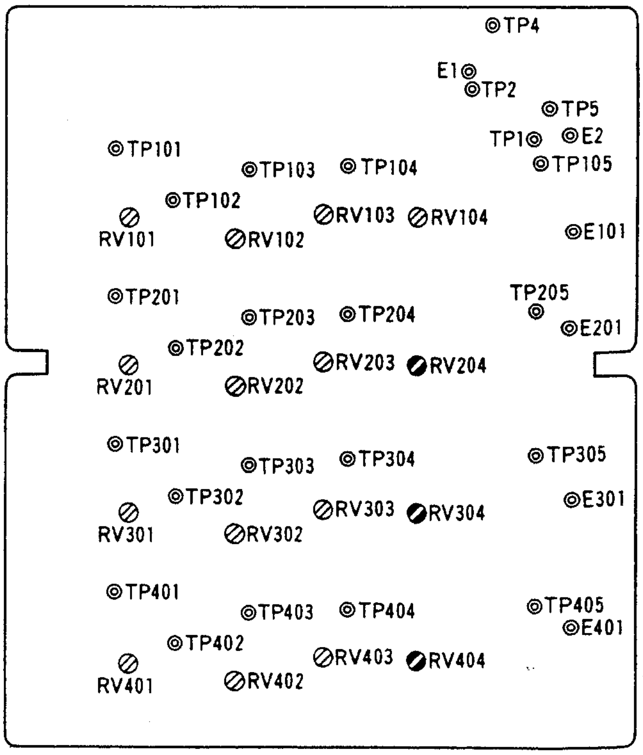
2. CABLE COMP switch/rear panel, 300m
3. Y/C GBR Y, B-Y, R-Y switches/rear panel, GBR

. Adjustment procedure

Make the following adjustments for each of the G-ch, B-ch, and R-ch amplifiers.

| | Test point/ VA-65 board | Adjustment point/ VA-65 board | Specification |
|---|---|---|---|
| G-ch | Terminal G/Y OUT | ⊘ RV304 | The waveform must be flat over a range from 0MHz to 6MHz. |
| B-ch | Terminal B/B-Y OUT | ⊘ RV404 | |
| R-ch | Terminal R/R-Y OUT | ⊘ RV204 | |

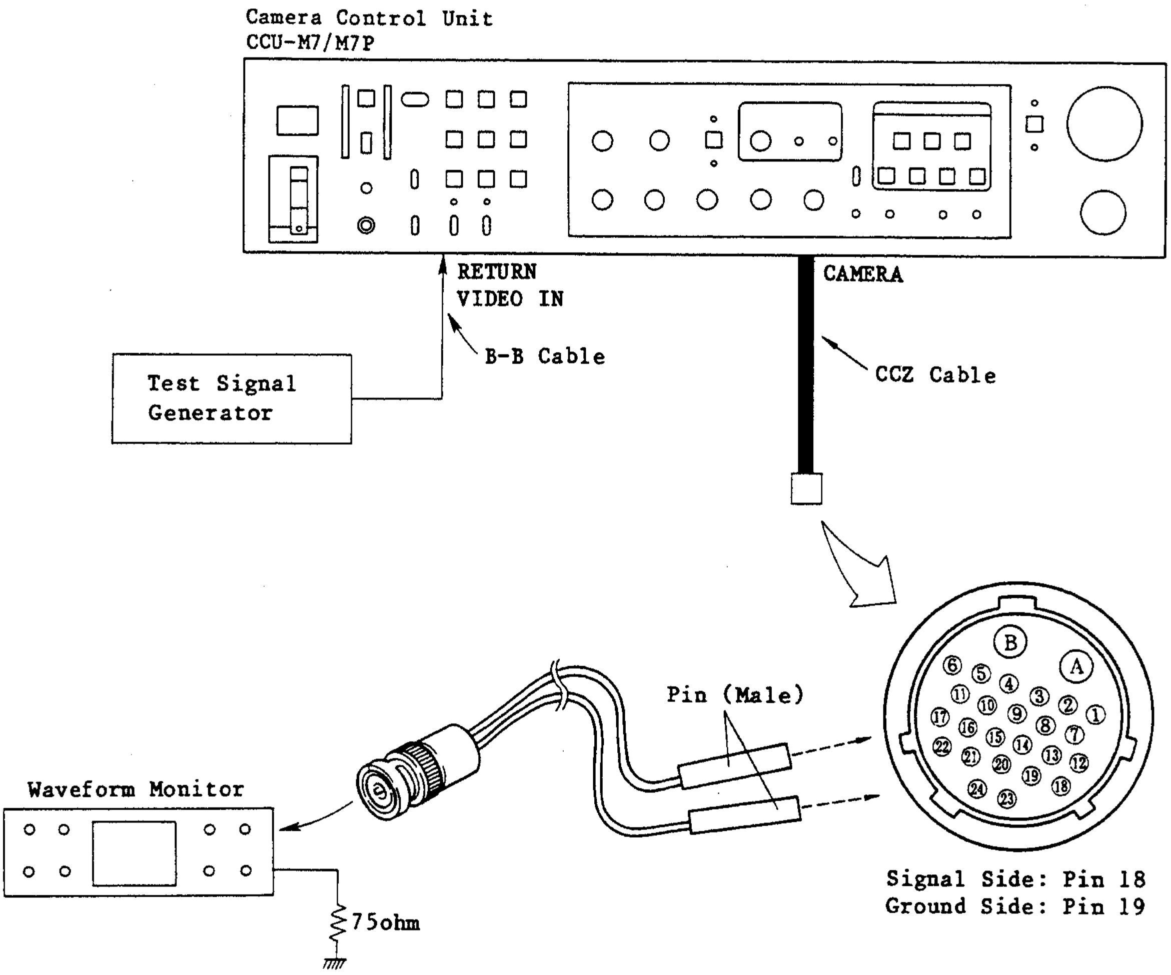

The waveform must be flat over a range from 0MHz to 6MHz.


◎TP4
E1◎
◎TP2
◎TP5
TP1◎
◎E2
◎TP105
◎TP101
◎TP103
◎TP104
◎TP102
RV101
◎RV102
◎RV103
◎RV104
◎E101
◎TP201
TP205
◎TP203
◎TP204
◎E201
◎TP202
RV201
◎RV202
◎RV203
◎RV204
◎TP301
◎TP303
◎TP304
◎TP305
◎TP302
RV301
◎RV302
◎RV303
◎RV304
◎E301
◎TP401
◎TP403
◎TP404
◎TP405
◎E401
◎TP402
RV401
◎RV402
◎RV403
◎RV404

VA-65 BOARD (COMPONENT SIDE)

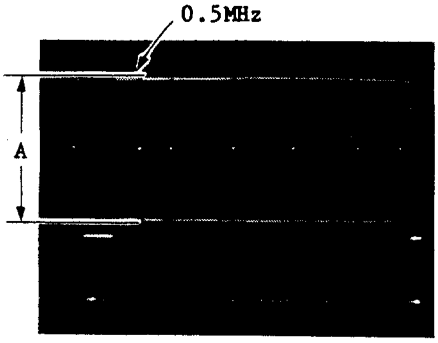
## 3-5. RETURN VIDEO AMPLIFIER ADJUSTMENT

. Test set-up


Camera Control Unit
CCU-M7/M7P
RETURN
VIDEO IN
B-B Cable
CAMERA
CCZ Cable
Test Signal
Generator
Pin (Male)
B
A
Waveform Monitor
75ohm
Signal Side: Pin 18
Ground Side: Pin 19

. Video signal used

Output signal/test signal generator: Sweep signal with sync



* Measure and note down level A at 0.5MHz.

### Step 1. Return video level adjustment

. Setting

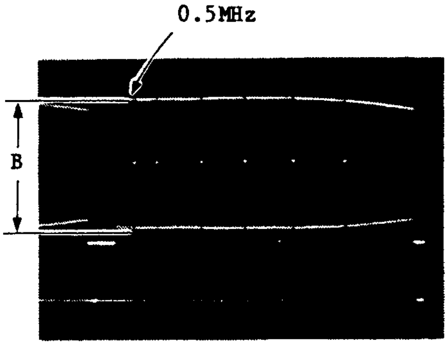
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 25m |

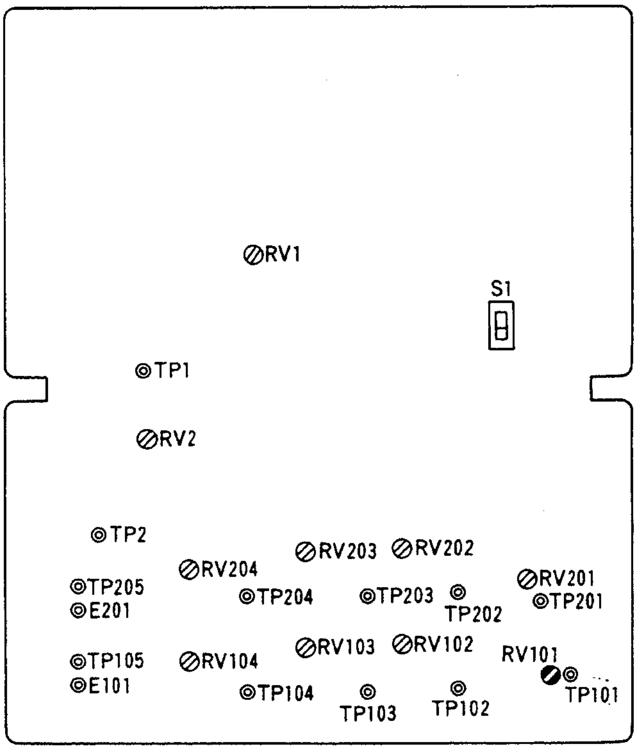
. Preparation

CABLE COMP switch/rear panel, 25m
RETURN VIDEO 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 18 (GND: Pin 19)/terminal CAMERA
Adjustment point: ⊘RV101/AT-50 board
Specification : B = A±2% (where A means the level of the output signal/test signal generator at 0.5MHz)




RV1
S1
TP1
RV2
TP2
RV203
RV202
RV204
RV201
TP205
TP204
TP203
TP202
TP201
E201
TP105
RV104
RV103
RV102
RV101
E101
TP104
TP103
TP102
TP101

AT-50 BOARD (COMPONENT SIDE)

## Step 2. Return video cable compensational adjustment 1

. Setting

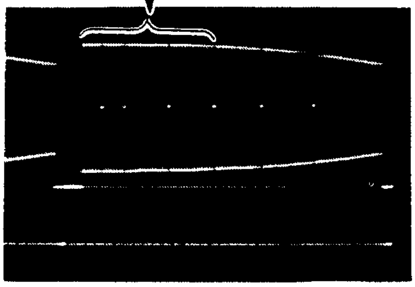
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 100m |

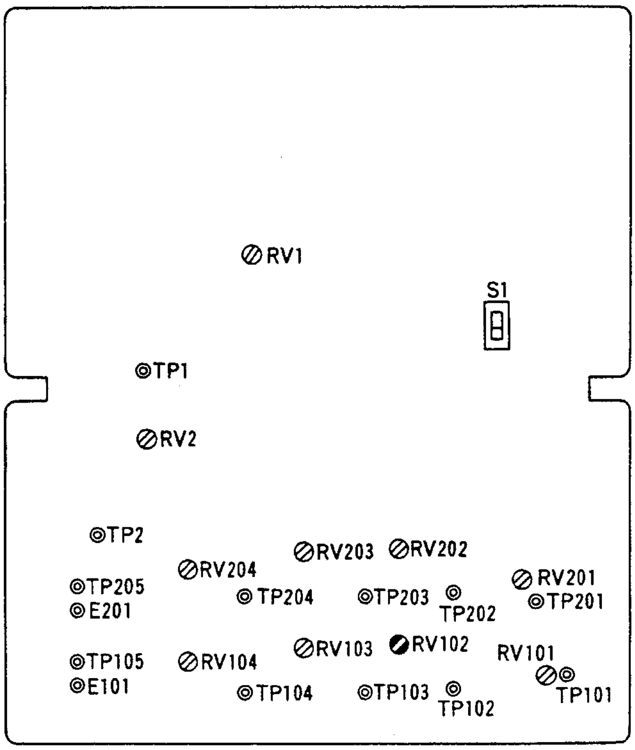
. Preparation

CABLE COMP switch/rear panel, 100m
RETURN VIDEO 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 18 (GND: Pin 19)/connector CCZ
Adjustment point: ⊘RV102/AT-50 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.




⊘RV1
S1
◎TP1
⊘RV2
◎TP2
⊘RV203
⊘RV202
⊘RV204
⊘RV201
◎TP205
◎E201
◎TP204
◎TP203
◎ TP202
◎TP201
◎TP105
◎E101
⊘RV104
⊘RV103
⊘RV102
RV101
⊘◎
◎TP104
◎TP103
◎ TP102
TP101

AT-50 BOARD (COMPONENT SIDE)

### Step 3. Return video cable compensational adjustment 2

. Setting

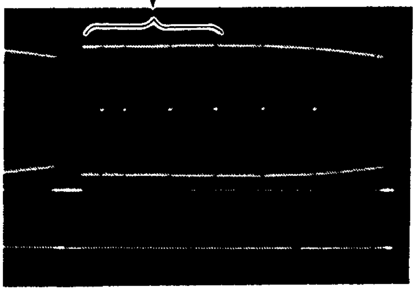
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 25m |

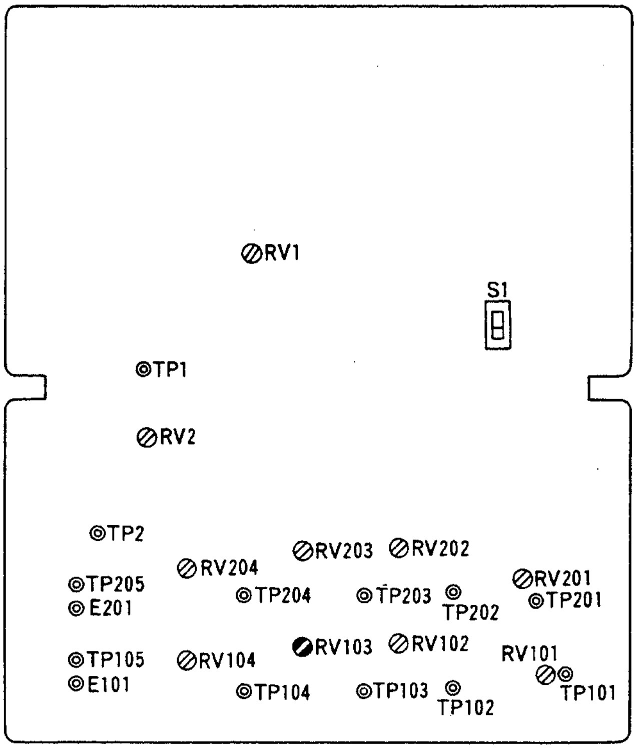
. Preparation

CABLE COMP switch/rear panel, 25m
RETURN VIDEO 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 18 (GND: Pin 19)/connector CCZ
Adjustment point: ⊘RV103/AT-50 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.




⊘RV1
S1
◎TP1
⊘RV2
◎TP2
⊘RV203
⊘RV202
⊘RV204
⊘RV201
◎TP205
◎E201
◎TP204
◎TP203
◎ TP202
◎TP201
◎TP105
⊘RV104
⊘RV103
⊘RV102
RV101
◎E101
◎TP104
◎TP103
◎ TP102
⊘◎ TP101

AT-50 BOARD (COMPONENT SIDE)

## Step 4. Return video cable compensational adjustment 3

. Setting

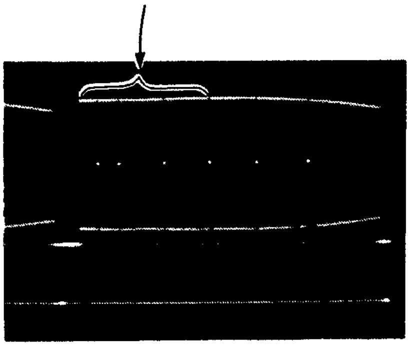
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 50m |

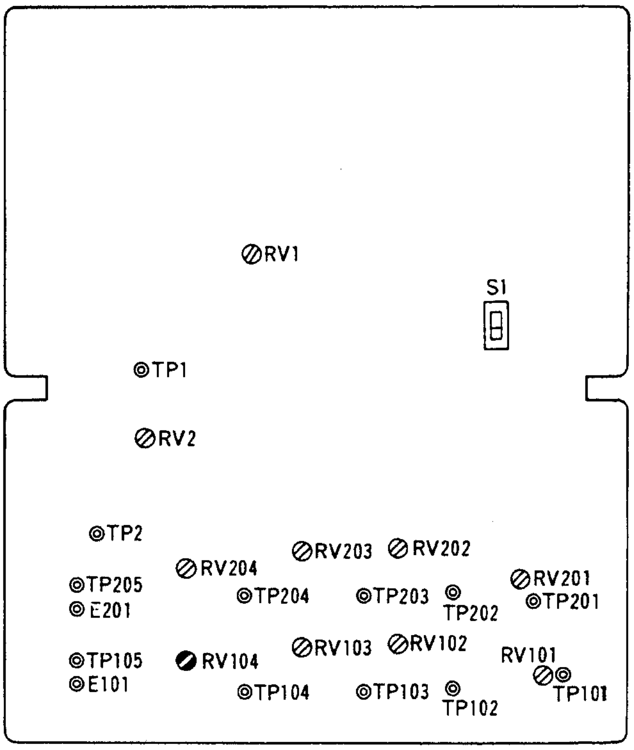
. Preparation

CABLE COMP switch/rear panel, 50m
RETURN VIDEO 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 18 (GND: Pin 19)/connector CCZ
Adjustment point: ⊘RV104/AT-50 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.

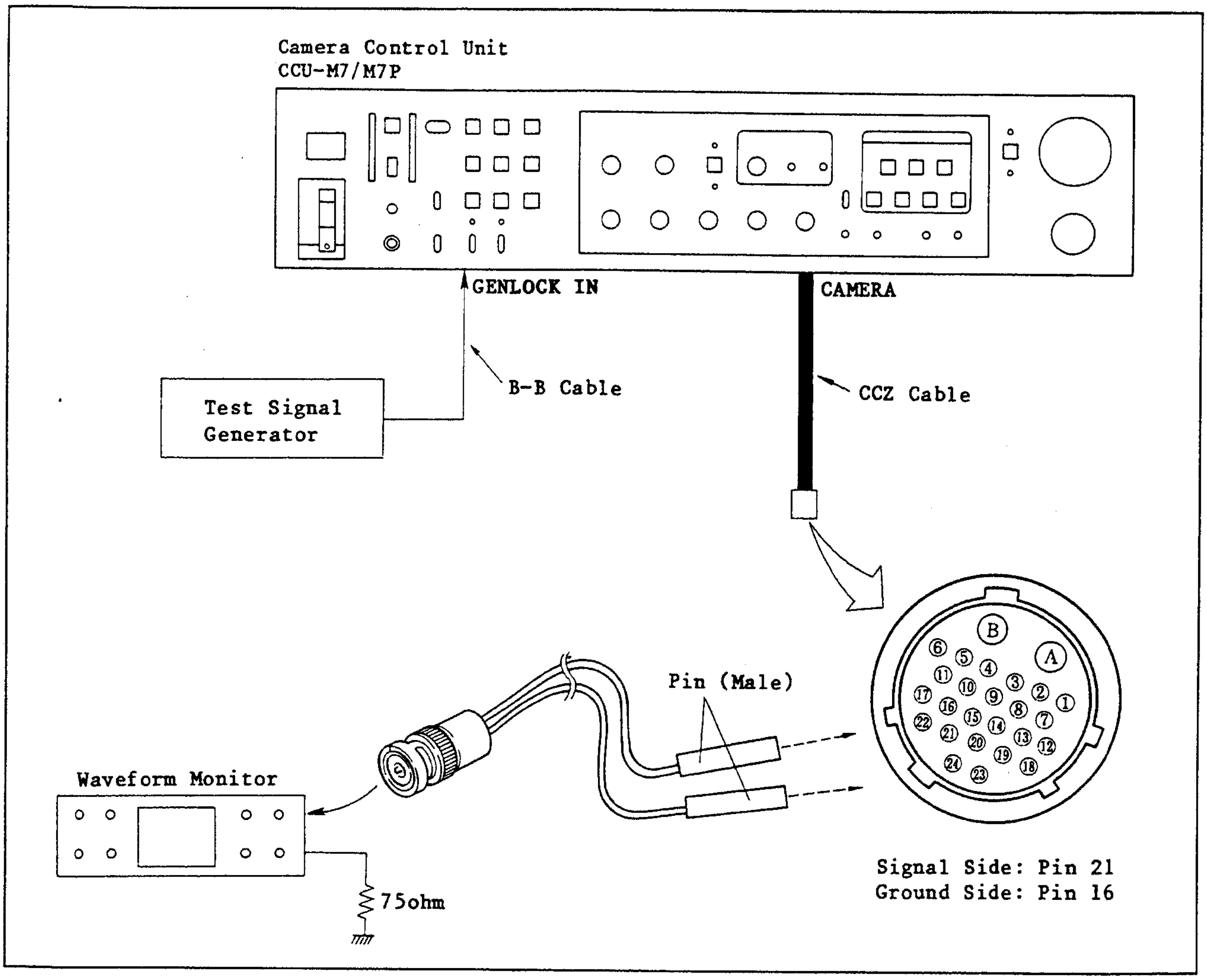



⊘RV1
S1
◎TP1
⊘RV2
◎TP2
⊘RV203
⊘RV202
⊘RV204
⊘RV201
◎TP205
◎TP204
◎TP203
◎TP202
◎TP201
◎E201
◎TP105
⊘RV104
⊘RV103
⊘RV102
RV101
◎TP101
◎E101
◎TP104
◎TP103
◎TP102

AT-50 BOARD (COMPONENT SIDE)

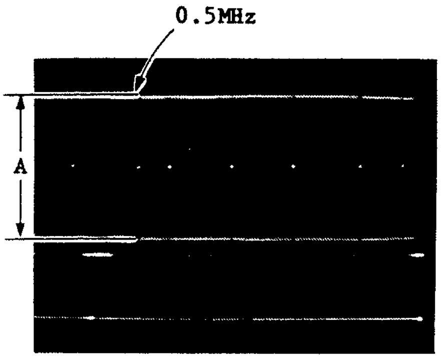
## 3-6. GENLOCK VIDEO AMPLIFIER ADJUSTMENT

- Test set-up


Camera Control Unit
CCU-M7/M7P
GENLOCK IN
CAMERA
B-B Cable
CCZ Cable
Test Signal Generator
Pin (Male)
Waveform Monitor
75ohm
A
B
Signal Side: Pin 21
Ground Side: Pin 16

- Video signal used

Output signal/test signal generator: Sweep signal with sync



* Measure and note down level A at 0.5 MHz.

## Step 1. GENLOCK video level adjustment

. Setting

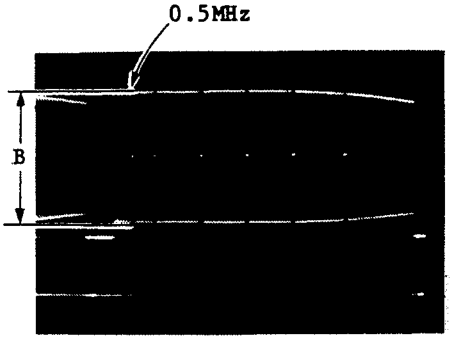
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 25m |

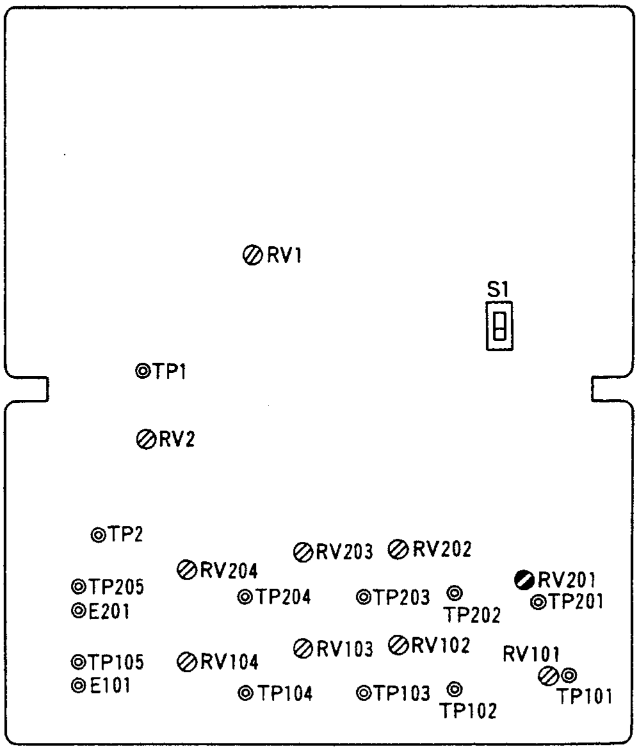
. Preparation

CABLE COMP switch/rear panel, 25m
GENLOCK 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 21 (GND: Pin 16)/connector CCZ
Adjustment point: ⊘ RV201/AT-50 board
Specification : B = A±2% (where A means the level of the output signal/test signal generator at 0.5MHz)




RV1
S1
TP1
RV2
TP2
RV203
RV202
RV204
RV201
TP205
E201
TP204
TP203
TP202
TP201
TP105
E101
RV104
RV103
RV102
RV101
TP104
TP103
TP102
TP101

AT-50 BOARD (COMPONENT SIDE)

## Step 2. GENLOCK video cable compensational adjustment 1

. Setting

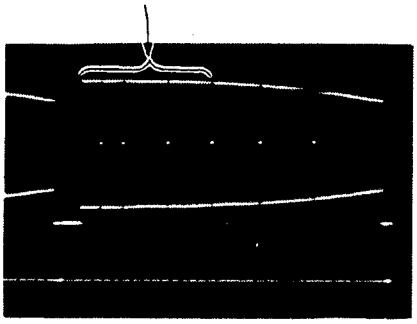
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 100m |

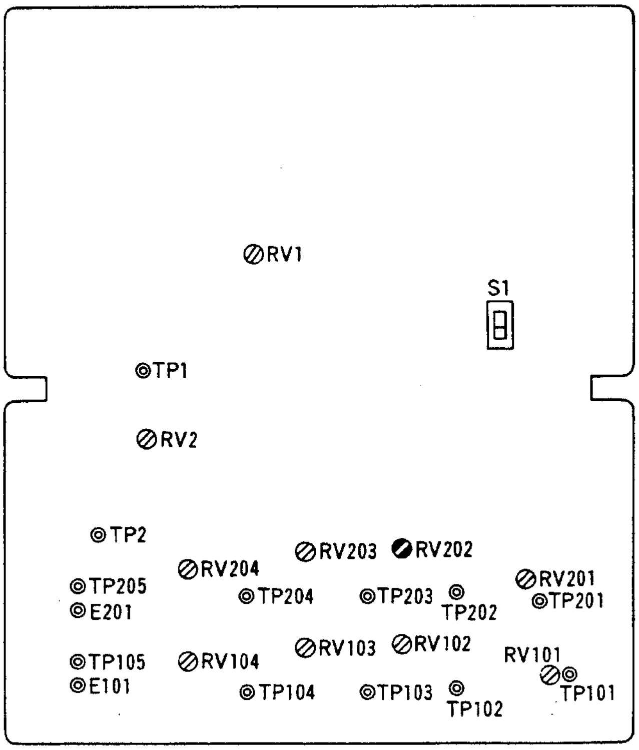
. Preparation

CABLE COMP switch/rear panel, 100m
GENLOCK 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 21 (GND: Pin 16)/connector CCZ
Adjustment point: ⊘RV202/AT-50 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.




⊘RV1
S1
◎TP1
⊘RV2
◎TP2
⊘RV203
⊘RV202
⊘RV204
⊘RV201
◎TP205
◎TP204
◎TP203
◎
TP202
◎TP201
◎E201
⊘RV103
⊘RV102
◎TP105
⊘RV104
RV101
⊘◎
◎E101
◎TP104
◎TP103
◎
TP102
TP101

AT-50 BOARD (COMPONENT SIDE)

## Step 3. GENLOCK video cable compensational adjustment 2

. Setting

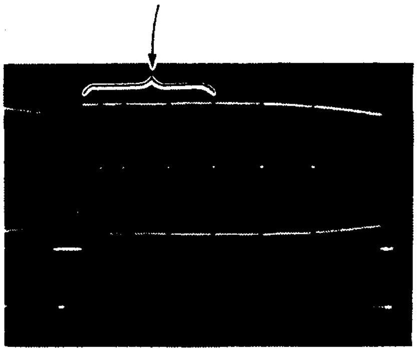
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 25m |

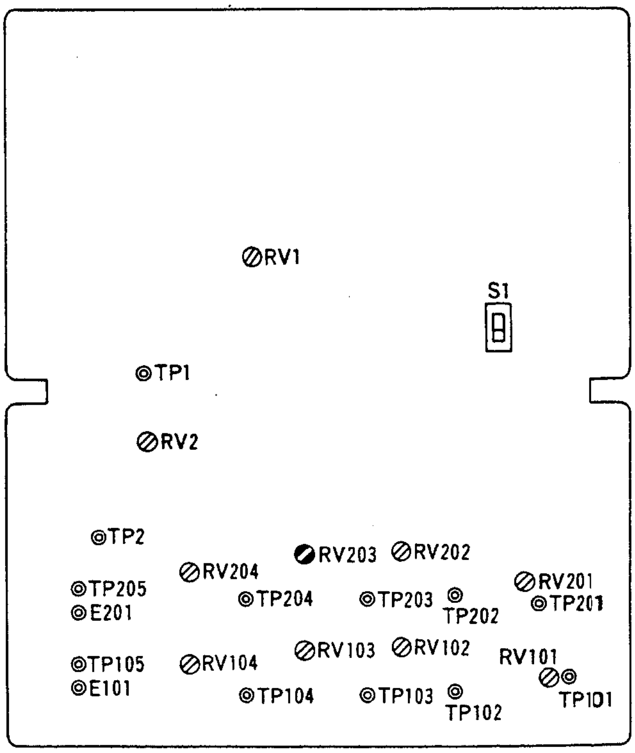
. Preparation

CABLE COMP switch/rear panel, 25m
GENLOCK 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 21 (GND: Pin 16)/connector CCZ
Adjustment point: ⊘RV203/AT-50 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.




⊘RV1
S1
◎TP1
⊘RV2
◎TP2
⊘RV203
⊘RV202
⊘RV204
◎TP205
◎E201
◎TP204
◎TP203
◎TP202
⊘RV201
◎TP201
◎TP105
◎E101
⊘RV104
⊘RV103
⊘RV102
RV101
◎TP104
◎TP103
◎TP102
⊘◎TP101

AT-50 BOARD (COMPONENT SIDE)

## Step 4. GENLOCK video cable compensational adjustment 3

. Setting

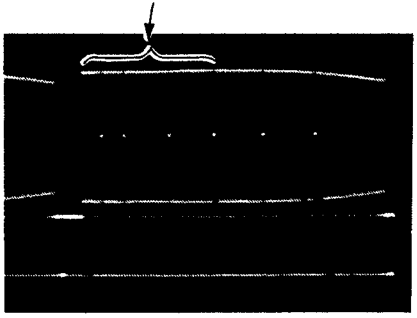
| | |
|---|---|
| Equipment: Waveform monitor (WFM) | CCZ cable length: 50m |

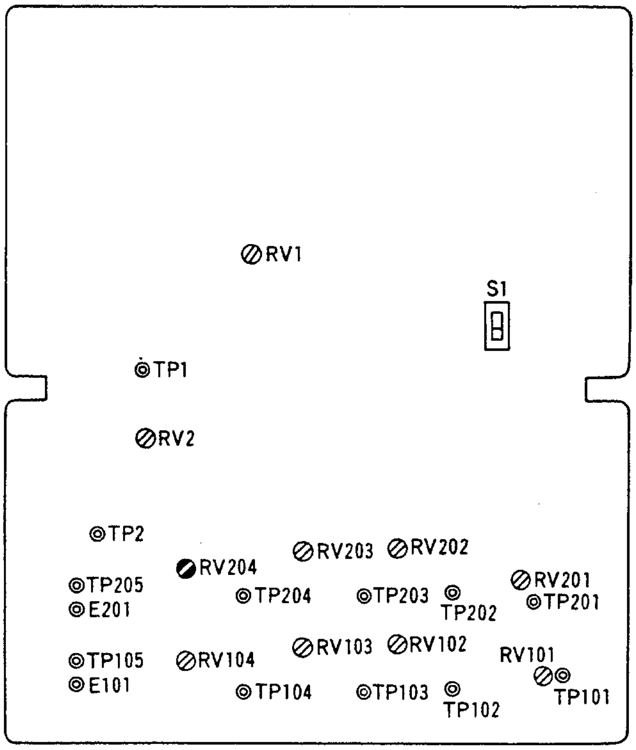
. Preparation

CABLE COMP switch/rear panel, 50m
GENLOCK 75ohm switch/rear panel, ON

. Adjustment procedure

Test point : Pin 21 (GND: Pin 16)/connector CCZ
Adjustment point: ⊘RV204/AT-50 board
Specification : The waveform must be flat over a range from 0MHz to 6MHz.

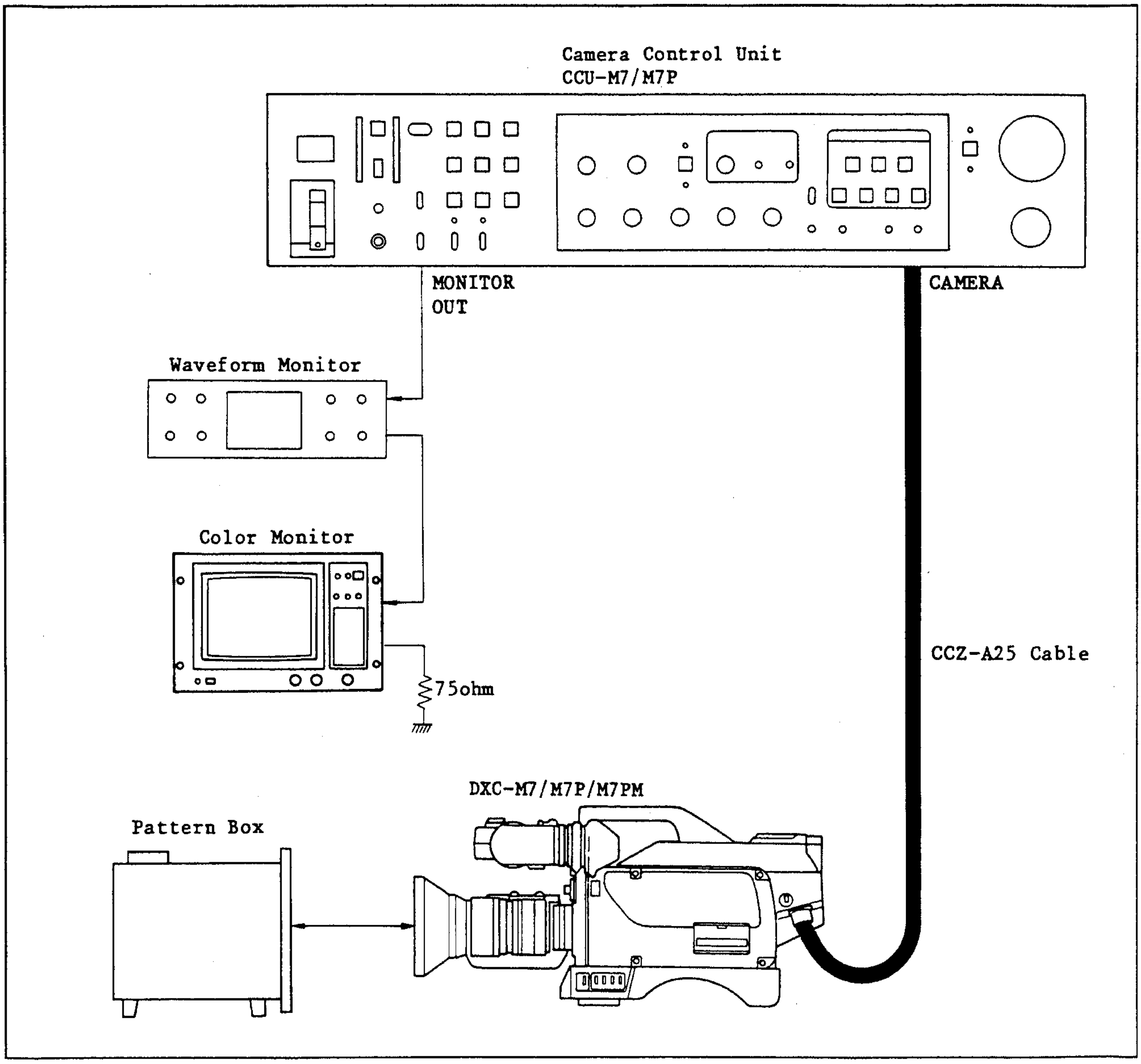



⊘RV1
S1
◎TP1
⊘RV2
◎TP2
⊘RV204
⊘RV203
⊘RV202
⊘RV201
◎TP205
◎E201
◎TP204
◎TP203
◎ TP202
◎TP201
◎TP105
◎E101
⊘RV104
⊘RV103
⊘RV102
RV101
◎TP104
◎TP103
◎ TP102
⊘◎ TP101

AT-50 BOARD (COMPONENT SIDE)

## 3-7. AUTO CONTROL ADJUSTMENT

- Test set-up


Camera Control Unit
CCU-M7/M7P
MONITOR
OUT
CAMERA
Waveform Monitor
Color Monitor
75ohm
CCZ-A25 Cable
DXC-M7/M7P/M7PM
Pattern Box

### Step 1. Character size adjustment

. Setting

Equipment: Color monitor

. Preparation

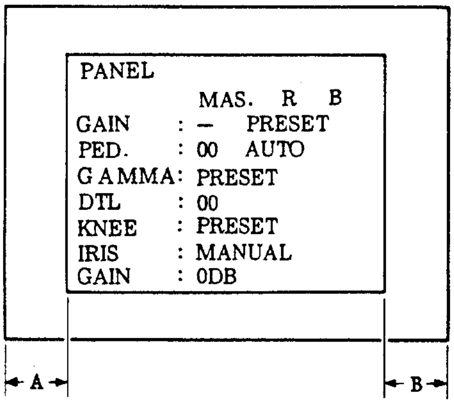
1. Camera OUTPUT switch: BARS/DCC OFF
2. CCU-M7 DIP switch: CHG

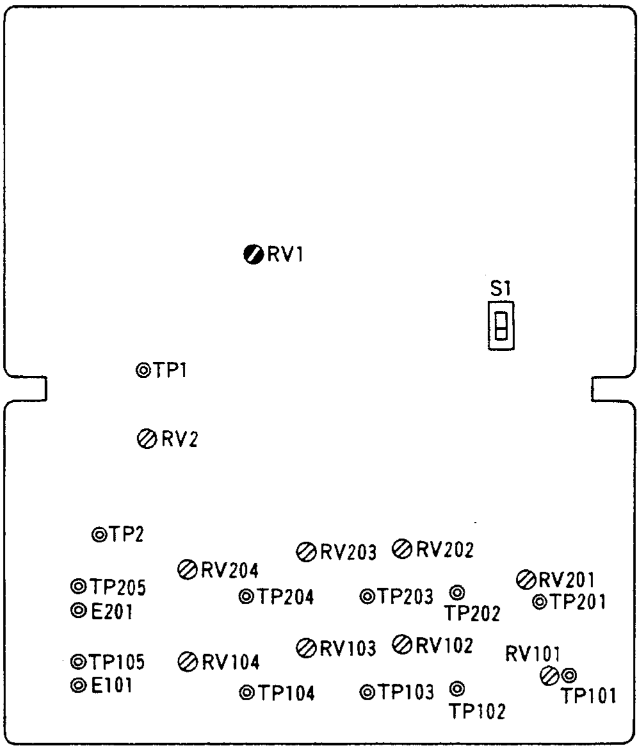
. Adjustment procedure

Test point : Terminal MONITOR OUT/rear panel

Adjustment point: ⊘RV1/AT-50 board

Specification : A = B

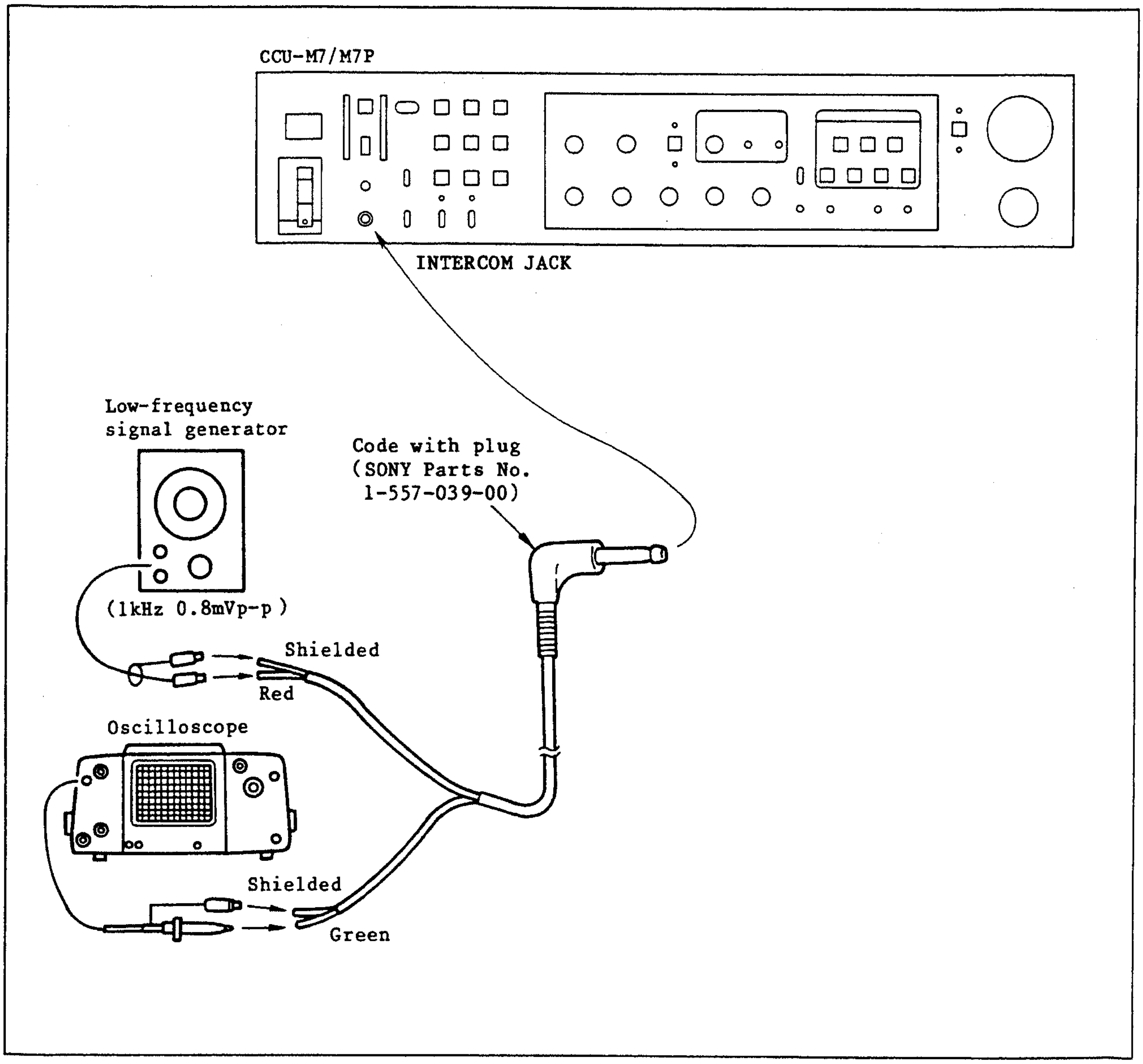

PANEL
MAS. R B
GAIN : – PRESET
PED. : 00 AUTO
GAMMA: PRESET
DTL : 00
KNEE : PRESET
IRIS : MANUAL
GAIN : 0DB


RV1
S1
TP1
RV2
TP2
RV203
RV202
RV204
TP205
E201
TP204
TP203
TP202
RV201
TP201
TP105
E101
RV104
RV103
RV102
RV101
TP104
TP103
TP102
TP101

AT-50 BOARD (COMPONENT SIDE)

## 3-8. INTERCOM ADJUSTMENT

- Test set-up


CCU-M7/M7P
INTERCOM JACK
Low-frequency signal generator
(1kHz 0.8mVp-p )
Code with plug (SONY Parts No. 1-557-039-00)
Shielded
Red
Oscilloscope
Shielded
Green

## Step 1. INCOM SIDE TONE adjustment

. Setting

Equipment: Oscilloscope

. Preparation

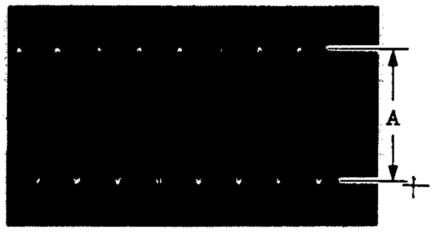
INTERCOM knob/front panel: Fully clockwise ↻
⊘RV2/AT-50 board : Fully counterclockwise

. Adjustment procedure

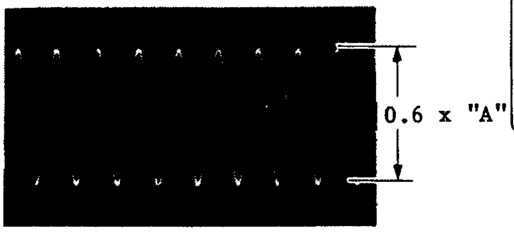
Test point : INTERCOM jack output/front panel

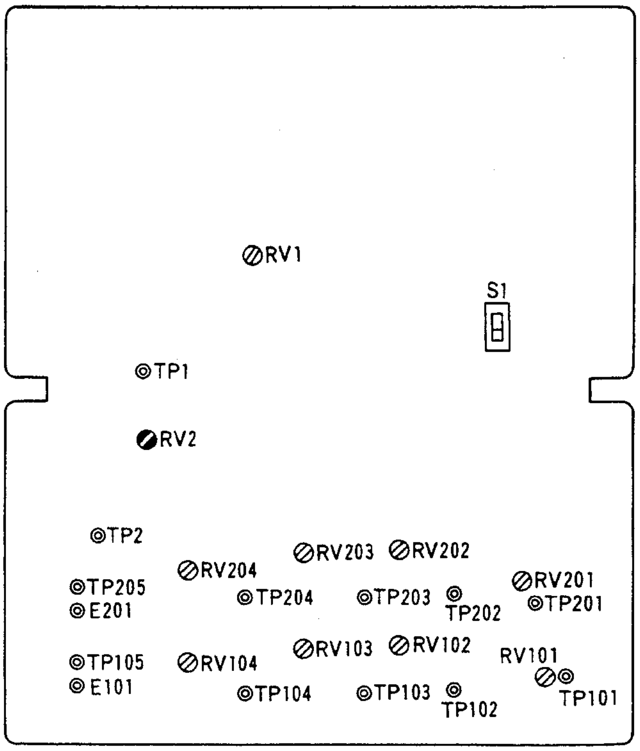
Adjustment point:

1. Measure level A at the INTERCOM jack output.



2. Adjust ⊘RV2/AT-50 board so that level A at the INTERCOM jack output is 60% of the value measured at the above step.




RV1
S1
TP1
RV2
TP2
RV203
RV202
RV204
RV201
TP205
E201
TP204
TP203
TP202
TP201
TP105
E101
RV104
RV103
RV102
RV101
TP104
TP103
TP102
TP101

AT-50 BOARD (COMPONENT SIDE)

# SECTION B
# SEMICONDUCTOR

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE PAGE

1S1555..........B-2
1S2835..........B-2
1S2837..........B-2

1SS123..........B-2
2SA1015.........B-2
2SA1226.........B-2
2SA812..........B-2

2SB834..........B-2

2SC1623.........B-2
2SC1815.........B-2
2SC2655.........B-2
2SC2757.........B-2
2SC3909.........B-2

2SK386..........B-2
2SK94...........B-2

30DF2...........B-2

BX1040..........B-3
BX1082..........B-3

C16P20F.........B-2

CXK1005P........B-3

D5SB60..........B-2

ERA81-005.......B-2

ERB43-? ?.......B-2
ERB81-004.......B-2

ERC24-??S.......B-2

HD6305X2P.......B-4

HN27C64G-20.....B-4

TYPE PAGE

HZS??L..........B-2

L5431...........B-7

M5236L..........B-7
M5F78??.........B-7

MB3759..........B-7
MB88303.........B-5

NJM2904D........B-7
NJM4560M........B-5
NJM78M??FA......B-7

RD??JSB?........B-2
RD ? ?MB?.......B-2

TC4028BF........B-5
TC4030BFHB......B-5
TC4042BF........B-5
TC4049BF........B-5
TC4050BF........B-5
TC4051BF........B-6
TC4053BFHB......B-6
TC4071BF........B-6
TC4528BFHB......B-6
TC4538BF........B-6

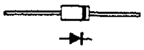
TL082CPS........B-6
TL601CP.........B-7

TLG206..........B-2

V09G............B-2

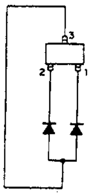
uPC311C.........B-6
uPC311G2........B-6

# DIODE, TRANSISTOR

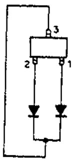


1S1555
30DF2
ERB43- ? ?
ERC24- ? ?S

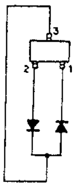
TOP VIEW (SCALE 4/1) 1S2835



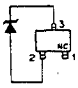
TOP VIEW (SCALE 4/1) 1S2837



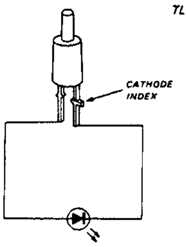
TOP VIEW (SCALE 4/1) 1SS123



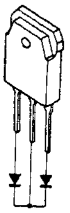
TOP VIEW (SCALE 4/1) RD ? ?MB?



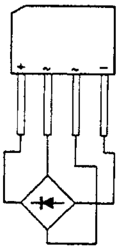
TLG206 : GREEN

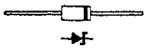

CATHODE
INDEX

C16P20F

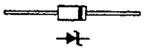


D5SB60

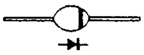




ERA81-005
ERB81-004

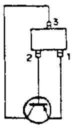


RD ? ?JSB ?
HZS ? ?L

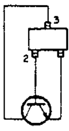


V09G

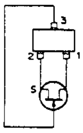
TOP VIEW (SCALE 4/1) 2SA1226
2SA812

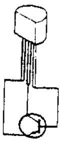


TOP VIEW (SCALE 4/1) 2SC1623
2SC2757

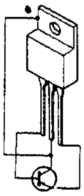


TOP VIEW (SCALE 4/1) 2SK94

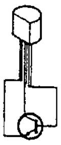




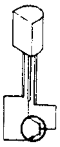
2SA1015



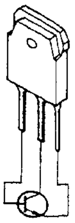
2SB834



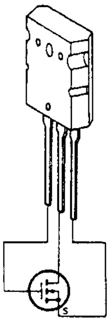
2SC1815



2SC2655

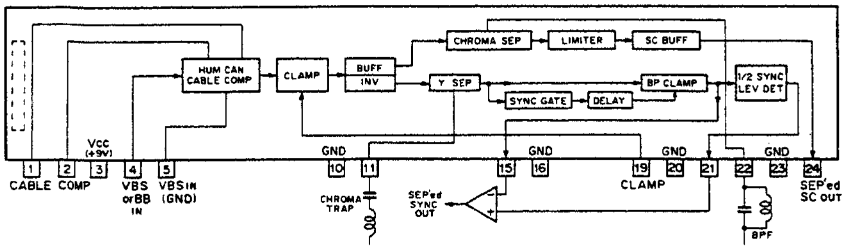


2SC3909

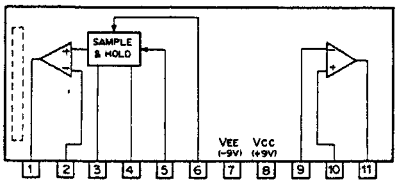


2SK386

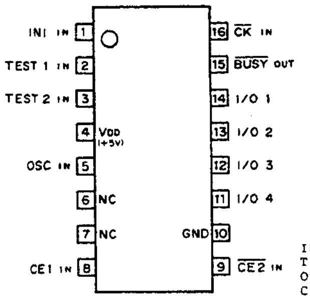
**BX1040 (SONY)**
SYNC SEPARATOR
— REAR VIEW —

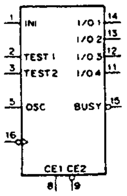

CHROMA SEP
LIMITER
SC BUFF
HUM CAN CABLE COMP
CLAMP
BUFF INV
Y SEP
BP CLAMP
1/2 SYNC LEV DET
SYNC GATE
DELAY
VCC (+9V)
GND
GND
GND
GND
1 CABLE
2 COMP
3
4 VBS orBB IN
5 VBS IN (GND)
10
11
15
16
19 CLAMP
20
21
22
23
24 SEP'ed SC OUT
CHROMA TRAP
SEP'ed SYNC OUT
BPF

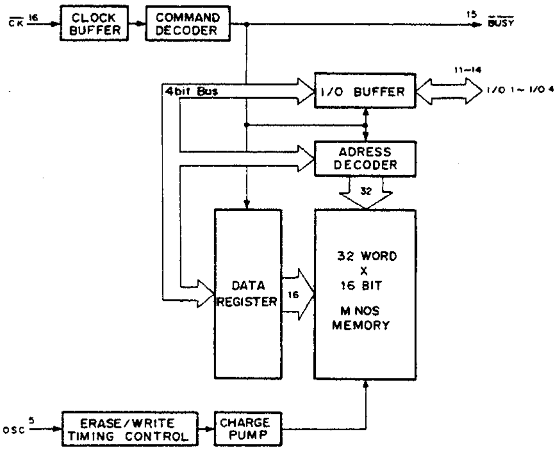
**BX1082 (SONY)**
OPERATIONAL AMPLIFIER
— REAR VIEW —


SAMPLE & HOLD
VEE (-9V)
VCC (+9V)
1
2
3
4
5
6
7
8
9
10
11

**CXK1005P (SONY)**
MNOS 512-BIT (32x16) $E^2$PROM
— TOP VIEW —


INI IN 1
TEST 1 IN 2
TEST 2 IN 3
4 VDD (+5V)
OSC IN 5
6 NC
7 NC
CE1 IN 8
16 CK IN
15 BUSY OUT
14 I/O 1
13 I/O 2
12 I/O 3
11 I/O 4
GND 10
9 CE2 IN


1 INI
2 TEST1
3 TEST2
5 OSC
16
I/O 1 14
I/O 2 13
I/O 3 12
I/O 4 11
BUSY 15
CE1 CE2
8
9

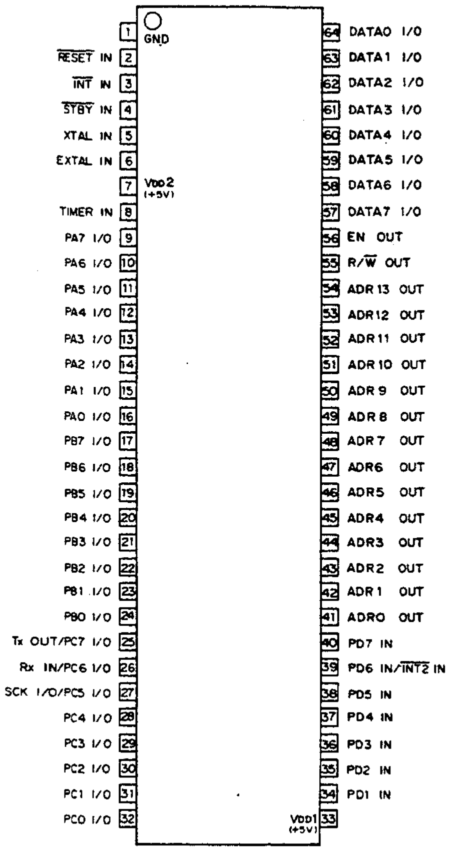

CK 16
CLOCK BUFFER
COMMAND DECODER
15 BUSY
4bit Bus
I/O BUFFER
11~14
I/O 1~I/O 4
ADRESS DECODER
32
DATA REGISTER
16
32 WORD x 16 BIT M NOS MEMORY
OSC 5
ERASE/WRITE TIMING CONTROL
CHARGE PUMP

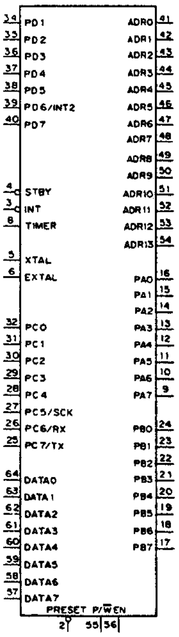
INI: INITIALIZE INPUT
TEST1, TEST2: CONNECTED TO VDD
OSC: OSCILLATOR INPUT
CE1, CE2: CHIP ENABLE INPUT
I/O1-I/O4: ADDRESS/DATA INPUTS/OUTPUTS
BUSY: BUSY SIGNAL OUTPUT
CK: PROCESSOR CLOCK INPUT

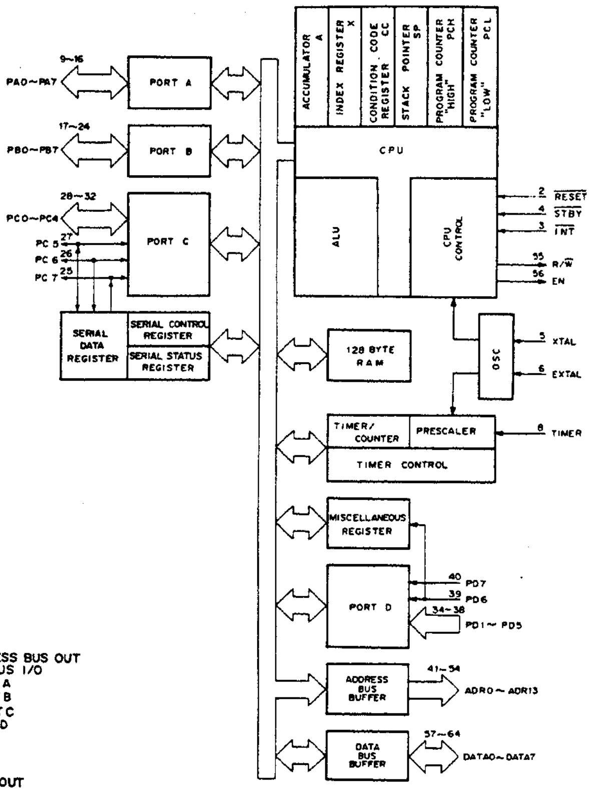
| INPUT | | | | | | | FUNCTION |
|---|---|---|---|---|---|---|---|
| INI | CE | $\overline{CE}$ | I/O1 | I/O2 | I/O3 | I/O4 | |
| 0 | 1 | 0 | 0 | 0 | 1 | 0 | READ |
| 0 | 1 | 0 | 1 | 0 | 1 | 0 | WRITE |
| 0 | 1 | 0 | X | X | 0 | 0 | NO OPERATION |
| 0 | 1 | 0 | X | X | 0 | 1 | NO OPERATION |
| 0 | 1 | 0 | X | X | 1 | 1 | NO OPERATION |
| 0 | 0 | 0 | X | X | X | X | NO OPERATION |
| 0 | 0 | 1 | X | X | X | X | NO OPERATION |
| 0 | 1 | 1 | X | X | X | X | NO OPERATION |
| 1 | X | X | X | X | X | X | NO OPERATION |

1: HIGH LEVEL
0: LOW LEVEL
X: DON'T CARE

HD6305X2P (HITACHI)
C-MOS 8-BIT MICROPROCESSOR UNIT
— TOP VIEW —

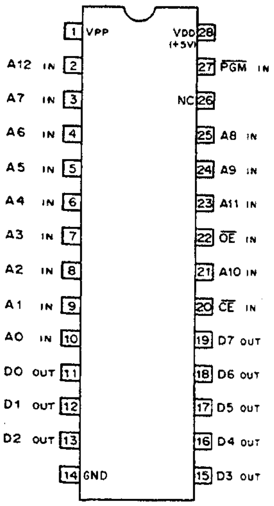

1 GND
2 RESET IN
3 INT IN
4 STBY IN
5 XTAL IN
6 EXTAL IN
7 VDD2 (+5V)
8 TIMER IN
9 PA7 I/O
10 PA6 I/O
11 PA5 I/O
12 PA4 I/O
13 PA3 I/O
14 PA2 I/O
15 PA1 I/O
16 PA0 I/O
17 PB7 I/O
18 PB6 I/O
19 PB5 I/O
20 PB4 I/O
21 PB3 I/O
22 PB2 I/O
23 PB1 I/O
24 PB0 I/O
25 Tx OUT/PC7 I/O
26 Rx IN/PC6 I/O
27 SCK I/O/PC5 I/O
28 PC4 I/O
29 PC3 I/O
30 PC2 I/O
31 PC1 I/O
32 PC0 I/O
33 VDD1 (+5V)
34 PD1 IN
35 PD2 IN
36 PD3 IN
37 PD4 IN
38 PD5 IN
39 PD6 IN/INT2 IN
40 PD7 IN
41 ADR0 OUT
42 ADR1 OUT
43 ADR2 OUT
44 ADR3 OUT
45 ADR4 OUT
46 ADR5 OUT
47 ADR6 OUT
48 ADR7 OUT
49 ADR8 OUT
50 ADR9 OUT
51 ADR10 OUT
52 ADR11 OUT
53 ADR12 OUT
54 ADR13 OUT
55 R/W OUT
56 EN OUT
57 DATA7 I/O
58 DATA6 I/O
59 DATA5 I/O
60 DATA4 I/O
61 DATA3 I/O
62 DATA2 I/O
63 DATA1 I/O
64 DATA0 I/O

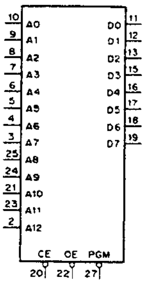

34 PD1
33 PD2
36 PD3
37 PD4
38 PD5
39 PD6/INT2
40 PD7
4 STBY
3 INT
8 TIMER
5 XTAL
6 EXTAL
32 PC0
31 PC1
30 PC2
29 PC3
28 PC4
27 PC5/SCK
26 PC6/RX
25 PC7/TX
64 DATA0
63 DATA1
62 DATA2
61 DATA3
60 DATA4
59 DATA5
58 DATA6
57 DATA7
ADR0 41
ADR1 42
ADR2 43
ADR3 44
ADR4 45
ADR5 46
ADR6 47
ADR7 48
ADR8 49
ADR9 50
ADR10 51
ADR11 52
ADR12 53
ADR13 54
PA0 16
PA1 15
PA2 14
PA3 13
PA4 12
PA5 11
PA6 10
PA7 9
PB0 24
PB1 23
PB2 22
PB3 21
PB4 20
PB5 19
PB6 18
PB7 17
PRESET P/W EN
2 55 56


ACCUMULATOR A
INDEX REGISTER X
CONDITION CODE REGISTER CC
STACK POINTER SP
PROGRAM COUNTER "HIGH" PCH
PROGRAM COUNTER "LOW" PCL
CPU
ALU
CPU CONTROL
2 RESET
4 STBY
3 INT
55 R/W
56 EN
9~16 PA0~PA7 PORT A
17~24 PB0~PB7 PORT B
28~32 PC0~PC4 PORT C
PC 5 27
PC 6 26
PC 7 25
SERIAL DATA REGISTER
SERIAL CONTROL REGISTER
SERIAL STATUS REGISTER
128 BYTE RAM
OSC
5 XTAL
6 EXTAL
TIMER/COUNTER
PRESCALER
8 TIMER
TIMER CONTROL
MISCELLANEOUS REGISTER
PORT D
40 PD7
39 PD6
34~38 PD1~PD5
ADDRESS BUS BUFFER
41~54 ADR0~ADR13
DATA BUS BUFFER
57~64 DATA0~DATA7

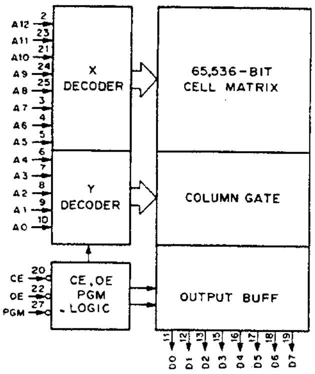
ADR0~ADR13 ; 14-BIT ADDRESS BUS OUT
DATA0~DATA7 ; 8-BIT DATA BUS I/O
PA0~ PA7 ; 8-BIT I/O PORT A
PB0~ PB7 ; 8-BIT I/O PORT B
PC0~ PC7 ; 8-BIT I/O PORT C
PD 1~ PD7 ; 7-BIT IN PORT D
RESET ; RESET IN
STBY ; STANDBY IN
EN ; ENABLE OUT
R/W ; READ/WRITE OUT
INT ; INTERRUPT IN
INT2 ; INTERRUPT IN
TIMER ; TIMER CONTROL IN
TIMER2 ; TIMER CONTROL IN
XTAL ; CRYSTAL
EXTAL ; EXTERNAL CRYSTAL IN
SCK ; SERIAL INTERFACE CLOCK I/O
RX ; SERIAL DATA RECEIVE
TX ; SERIAL DATA TRANSMIT

HN27C64G-20 (HITACHI) (ACCESS TIME = 200 nS)
C-MOS 64K (8K-8) ERASABLE PROM WITH 3-STATE OUTPUTS
— TOP VIEW —


1 VPP
2 A12 IN
3 A7 IN
4 A6 IN
5 A5 IN
6 A4 IN
7 A3 IN
8 A2 IN
9 A1 IN
10 A0 IN
11 D0 OUT
12 D1 OUT
13 D2 OUT
14 GND
15 D3 OUT
16 D4 OUT
17 D5 OUT
18 D6 OUT
19 D7 OUT
20 CE IN
21 A10 IN
22 OE IN
23 A11 IN
24 A9 IN
25 A8 IN
26 NC
27 PGM IN
28 VDD (+5V)


10 A0
9 A1
8 A2
7 A3
6 A4
5 A5
4 A6
3 A7
25 A8
24 A9
21 A10
23 A11
2 A12
D0 11
D1 12
D2 13
D3 15
D4 16
D5 17
D6 18
D7 19
CE OE PGM
20 22 27

A0~A12 ; ADDRESS
CE ; CHIP ENABLE
D0~D7 ; DATA OUTPUT
OE ; OUTPUT ENABLE
PGM ; PROGRAM ENABLE
VPP ; PROGRAM VOLTAGE


A12 2
A11 23
A10 21
A9 24
A8 25
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
X DECODER
Y DECODER
65,536-BIT CELL MATRIX
COLUMN GATE
CE 20
OE 22
PGM 27
CE, OE PGM LOGIC
OUTPUT BUFF
11 12 13 15 16 17 18 19
D0 D1 D2 D3 D4 D5 D6 D7

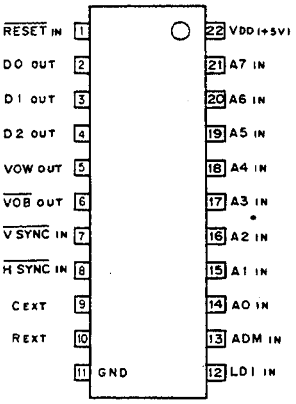
| An | CE | OE | PGM | Vpp | Dn | FUNCTION |
|---|---|---|---|---|---|---|
| An | 0 | 0 | 1 | +5V | D OUT | READ |
| An | 0 | 1 | 1 | +5V | HI-Z | OUTPUT DISABLE |
| An | 0 | 0 | 0 | +5V | HI-Z | OUTPUT DISABLE |
| X | 1 | X | X | +5V | HI-Z | STANDBY |
| An | 0 | X | ⊔ | +21V | DIN | PGM |
| An | 0 | 0 | 1 | +21V | D OUT | PGM VERIFY |
| X | 1 | X | X | +21V | HI-Z | PGM INH |

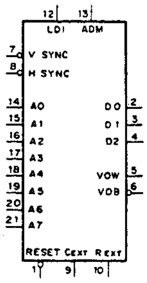
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE
HI-Z; HIGH IMPEDANCE

### MB88303 (FUJITSU)

N-MOS PROGRAMMABLE TV DISPLAY CONTROLLER

— TOP VIEW —


RESET IN 1
D0 OUT 2
D1 OUT 3
D2 OUT 4
VOW OUT 5
VOB OUT 6
V SYNC IN 7
H SYNC IN 8
CEXT 9
REXT 10
11 GND
12 LD1 IN
13 ADM IN
14 A0 IN
15 A1 IN
16 A2 IN
17 A3 IN
18 A4 IN
19 A5 IN
20 A6 IN
21 A7 IN
22 VDD (+5V)

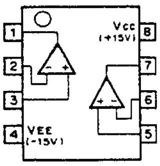

12
13
LD1
ADM
7
V SYNC
8
H SYNC
14 A0
15 A1
16 A2
17 A3
18 A4
19 A5
20 A6
21 A7
D0 2
D1 3
D2 4
VOW 5
VOB 6
RESET
CEXT
REXT
1
9
10

| | |
|---|---|
| ADM | ; ADDRESS INCREMENT MODE |
| A0 to A7 | ; ADDRESS INPUT |
| D0 to D2 | ; DATA OUTPUT |
| CEXT | ; EXT CAPACITOR FOR OSC |
| LD1 | ; LOAD DATA AND INSTRUCTION |
| VOB | ; VIDEO BLACK OUT |
| VOW | ; VIDEO WHITE OUT |
| REXT | ; EXT RESISTOR FOR OSC |

### NJM4560M (JRC) FLAT PACKAGE

OPERATIONAL AMPLIFIER

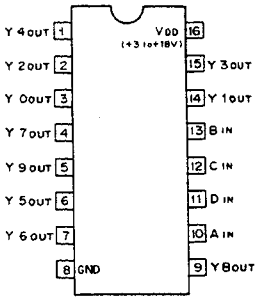
— TOP VIEW —

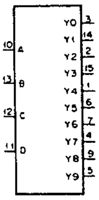

1
2
3
4
VEE (−15V)
Vcc (+15V)
8
7
6
5

### TC4028BF (TOSHIBA) FLAT PACKAGE

C-MOS BCD TO DECIMAL DECODER

— TOP VIEW —


Y 4OUT 1
Y 2OUT 2
Y 0OUT 3
Y 7OUT 4
Y 9OUT 5
Y 5OUT 6
Y 6OUT 7
8 GND
VDD (+3 to+18V) 16
15 Y 3OUT
14 Y 1OUT
13 B IN
12 C IN
11 D IN
10 A IN
9 Y 8OUT


10 A
13 B
12 C
11 D
Y0 3
Y1 14
Y2 2
Y3 15
Y4 1
Y5 6
Y6 7
Y7 4
Y8 9
Y9 5

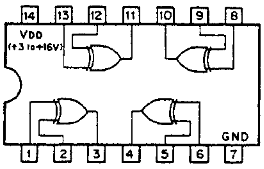
| STATE | INPUTS | | | | OUTPUTS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | D | C | B | A | Y0 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 6 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 7 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 8 | 1 | X | X | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 9 | 1 | X | X | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

### TC4030BFHB (TOSHIBA) FLAT PACKAGE

C-MOS EXCLUSIVE OR GATE

— TOP VIEW —


14
13
12
11
10
9
8
VDD (+3 to+16V)
GND
1
2
3
4
5
6
7

$Y=\bar{A}\cdot B+A\cdot\bar{B}$

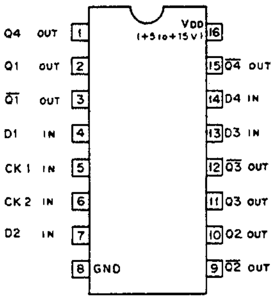
| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

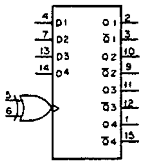
0: LOW LEVEL
1: HIGH LEVEL

### TC4042BF (TOSHIBA) FLAT PACKAGE

C-MOS D-TYPE LATCH

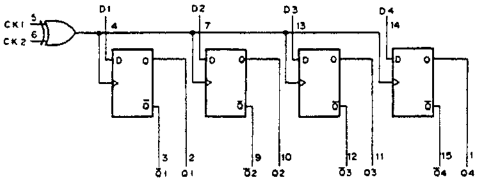
— TOP VIEW —


Q4 OUT 1
Q1 OUT 2
Q̄1 OUT 3
D1 IN 4
CK1 IN 5
CK2 IN 6
D2 IN 7
8 GND
VDD (+5 to+15V) 16
15 Q̄4 OUT
14 D4 IN
13 D3 IN
12 Q̄3 OUT
11 Q3 OUT
10 Q2 OUT
9 Q̄2 OUT


4 D1
7 D2
13 D3
14 D4
5
6
Q1 2
Q̄1 3
Q2 10
Q̄2 9
Q3 11
Q̄3 12
Q4 1
Q̄4 15

FUNCTION TABLE

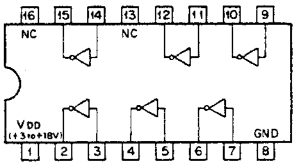
| CK1 | CK2 | Q / Q̄ |
|---|---|---|
| 0 | 0 | PASS DATA |
| 0 | 1 | LATCH DATA |
| 1 | 0 | LATCH DATA |
| 1 | 1 | PASS DATA |

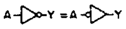

CK1 5
CK2 6
D1 4
D2 7
D3 13
D4 14
D
Q
Q̄
3 Q̄1
2 Q1
9 Q̄2
10 Q2
12 Q̄3
11 Q3
15 Q̄4
1 Q4

### TC4049BF (TOSHIBA) FLAT PACKAGE

C-MOS INVERTING TYPE BUFFER/CONVERTER

— TOP VIEW —


16
15
14
13
12
11
10
9
NC
NC
VDD (+3 to+18V)
GND
1
2
3
4
5
6
7
8



$Y=\bar{A}$

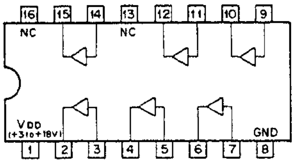
| A | Y |
|---|---|
| 0 | 1 |
| 1 | 0 |

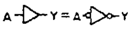
0; LOW LEVEL
1; HIGH LEVEL

### TC4050BF (TOSHIBA) FLAT PACKAGE

C-MOS NON-INVERTING TYPE BUFFER/CONVERTER

— TOP VIEW —


16
15
14
13
12
11
10
9
NC
NC
VDD (+3 to+18V)
GND
1
2
3
4
5
6
7
8

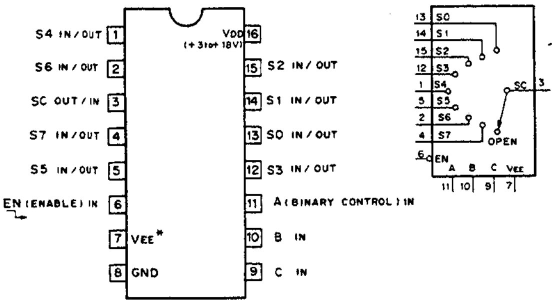


Y = A

| A | Y |
|---|---|
| 0 | 0 |
| 1 | 1 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4051 BF (TOSHIBA) FLAT PACKAGE
C-MOS 8-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —

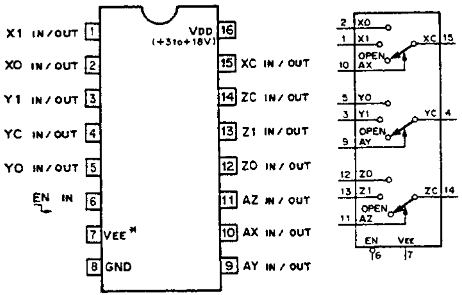

S4 IN/OUT 1
S6 IN/OUT 2
SC OUT/IN 3
S7 IN/OUT 4
S5 IN/OUT 5
EN (ENABLE) IN 6
7 VEE*
8 GND
VDD 16 (+3 to +18V)
15 S2 IN/OUT
14 S1 IN/OUT
13 S0 IN/OUT
12 S3 IN/OUT
11 A (BINARY CONTROL) IN
10 B IN
9 C IN
13 S0
14 S1
15 S2
12 S3
1 S4
5 S5
2 S6
4 S7
SC 3
OPEN
6 EN
A B C VEE
11 10 9 7

VEE* ; VDD − VEE : +3 to +18V

| EN | C | B | A | "ON" CHANNEL |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 |
| 0 | 0 | 1 | 0 | 2 |
| 0 | 0 | 1 | 1 | 3 |
| 0 | 1 | 0 | 0 | 4 |
| 0 | 1 | 0 | 1 | 5 |
| 0 | 1 | 1 | 0 | 6 |
| 0 | 1 | 1 | 1 | 7 |
| 1 | X | X | X | OPEN |

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

TC4053 BFHB (TOSHIBA) FLAT PACKAGE
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —

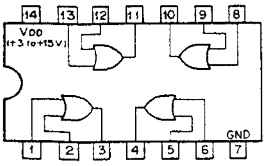

X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD 16 (+3 to +18V)
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT
2 X0
1 X1
OPEN
10 AX
XC 15
5 Y0
3 Y1
OPEN
9 AY
YC 4
12 Z0
13 Z1
OPEN
11 AZ
ZC 14
EN VEE
6 7

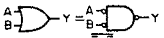
VEE* ; VDD − VEE : +3 to +18V

| CONT. INPUTS | | ON CHANNEL |
|---|---|---|
| EN | A (X,Y,Z,) | |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | X | OPEN |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

TC4071 BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT OR GATE
— TOP VIEW —


14 13 12 11 10 9 8
VDD (+3 to +15V)
GND
1 2 3 4 5 6 7

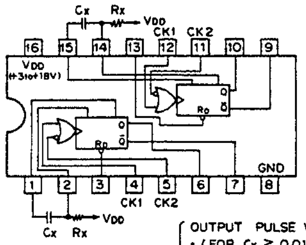


$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

| A | B | Y |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

TC4528BFHB (TOSHIBA) FLAT PACKAGE
C-MOS RETRIGGERABLE/RESETTABLE MMV
— TOP VIEW —

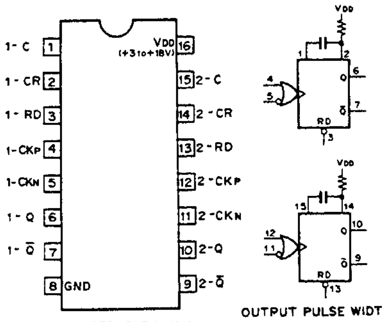

Cx
Rx
VDD
CK1 CK2
16 15 14 13 12 11 10 9
VDD (+3 to +18V)
Q
Q̄
RD
GND
1 2 3 4 5 6 7 8
CK1 CK2
VDD
Cx Rx

| INPUTS | | | OUTPUTS | |
|---|---|---|---|---|
| CK1 | CK2 | RD | Q | Q̄ |
| ⎍ rising | 1 | 1 | ⎍ | ⎍ inverted |
| ⎍ rising | 0 | 1 | Q | Q̄ |
| 1 | falling | 1 | Q | Q̄ |
| 0 | falling | 1 | ⎍ | ⎍ inverted |
| X | X | 0 | 0 | 1 |

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

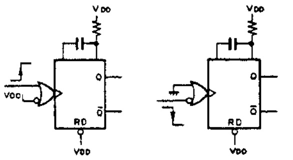
OUTPUT PULSE WIDTH Q OR Q̄
- (FOR Cx ≧ 0.01μF USE FORMULA)
  PW = 0.2 · Rx · Cx · ℓn (VDD − GND)
- (FOR Cx < 0.01μF USE DATA BOOK.)

TC4538BF (TOSHIBA) FLAT PACKAGE
— TOP VIEW —

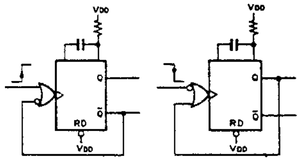

1-C 1
1-CR 2
1-RD 3
1-CKP 4
1-CKN 5
1-Q 6
1-Q̄ 7
8 GND
VDD 16 (+3 to +18V)
15 2-C
14 2-CR
13 2-RD
12 2-CKP
11 2-CKN
10 2-Q
9 2-Q̄
VDD
1 2
4 5
6 7
Q Q̄
RD
3
VDD
15 14
12 11
10 9
Q Q̄
RD
13

OUTPUT PULSE WIDTH=CR

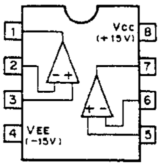
RETRIGGERABLE M.M.V


VDD
VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

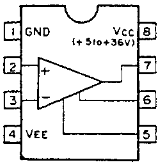
NON-RETRIGGERABLE M.M.V


VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

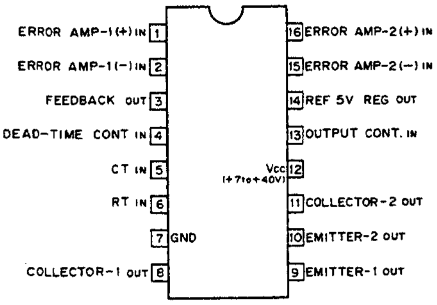
TL082CPS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —

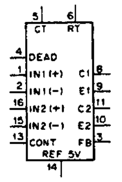

1
2
3
4 VEE (−15V)
Vcc (+15V) 8
7
6
5
− +
+ −

uPC311C (NEC)
uPC311G2 (NEC) FLAT PACKAGE
VOLTAGE COMPARATOR
— TOP VIEW —


1 GND
2
3
4 VEE
Vcc (+5 to +36V) 8
7
6
5
+
−

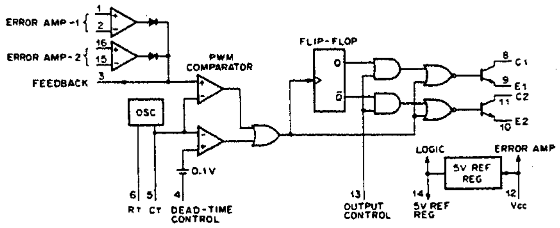
MB3759 (FUJITSU)
PWM POWER CONTROL
— TOP VIEW —


ERROR AMP-1(+) IN 1
ERROR AMP-1(−) IN 2
FEEDBACK OUT 3
DEAD-TIME CONT IN 4
CT IN 5
RT IN 6
7 GND
COLLECTOR-1 OUT 8
16 ERROR AMP-2(+) IN
15 ERROR AMP-2(−) IN
14 REF 5V REG OUT
13 OUTPUT CONT. IN
Vcc (+7 to +40V) 12
11 COLLECTOR-2 OUT
10 EMITTER-2 OUT
9 EMITTER-1 OUT

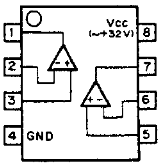

5 CT
6 RT
4 DEAD
1 IN1(+)
2 IN1(−)
16 IN2(+)
15 IN2(−)
13 CONT
C1 8
E1 9
C2 11
E2 10
FB 3
REF 5V
14

| OUTPUT CONTROL | OUTPUT FUNCTION |
|---|---|
| 0 | PARALLEL |
| 1 | PUSH-PULL |

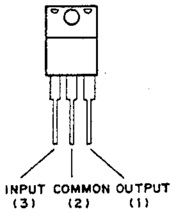
0 ; GROUNDED
1 ; CONNECTED TO PIN 14


ERROR AMP -1
1
2
ERROR AMP - 2
16
15
FEEDBACK
3
PWM COMPARATOR
OSC
0.1V
6 RT
5 CT
4 DEAD-TIME CONTROL
FLIP-FLOP
Q
Q̄
13 OUTPUT CONTROL
8 C1
9 E1
11 C2
10 E2
LOGIC
ERROR AMP
5V REF REG
14 5V REF REG
12 Vcc

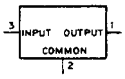
NJM2904D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —


1
2
3
4 GND
Vcc (~+32V) 8
7
6
5

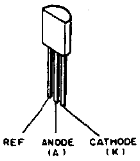
NJM78M ? ?FA (JRC)
— FRONT VIEW —

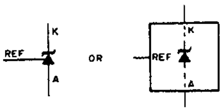

INPUT (3)
COMMON (2)
OUTPUT (1)

| | |
|---|---|
| 5V | NJM78M05FA |
| 6V | NJM78M06FA |
| 8V | NJM78M08FA |
| 9V | NJM78M09FA |
| 12V | NJM78M12FA |
| 15V | NJM78M15FA |
| 18V | NJM78M18FA |
| 20V | NJM78M20FA |
| 24V | NJM78M24FA |

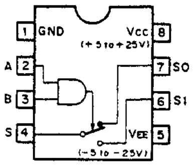

3 INPUT
OUTPUT 1
COMMON
2

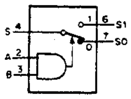
L5431 (SANYO)
ADJUSTABLE PRECISION SHUNT REGULATOR


REF
ANODE (A)
CATHODE (K)


K
REF
A
OR
K
REF
A

TL601 CP (TI)
P-MOS ANALOG SWITCH
— TOP VIEW —

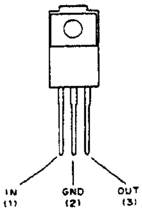

1 GND
A 2
B 3
S 4
Vcc 8
(+5 to +25V)
7 SO
6 S1
VEE 5
(−5 to −25V)


S 4
A 2
B 3
1
6 S1
7 SO
0

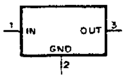
| CONT IN | | ON CHANNEL |
|---|---|---|
| A | B | |
| 0 | 0 | SO |
| 0 | 1 | SO |
| 1 | 0 | SO |
| 1 | 1 | S1 |

0 ; LOW LEVEL
1 ; HIGH LEVEL

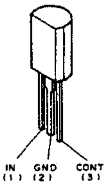
M5F78 ? ? (MITSUBISHI)
POSITIVE VOLTAGE REGULATOR (1A)
— PRINTED SIDE VIEW —

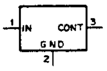

IN (1)
GND (2)
OUT (3)

| | |
|---|---|
| +5V | M5F7805 |
| +6V | M5F7806 |
| +7V | M5F7807 |
| +8V | M5F7808 |
| +9V | M5F7809 |
| +10V | M5F7810 |
| +12V | M5F7812 |
| +15V | M5F7815 |
| +18V | M5F7818 |
| +20V | M5F7820 |
| +24V | M5F7824 |


1 IN
OUT 3
GND
2

M5236L (MITSUBISHI)
ADJUSTABLE VOLTAGE REGULATOR


IN (1)
GND (2)
CONT (3)


1 IN
CONT 3
GND
2

## AT-50（2／2）回路図

注意：

1. DC電圧はデジタル電圧計（入力インピーダンス10 MΩ）による値。
2. 波形写真及びDC電圧は下記条件で測定。
   - CCU-M7をCCZケーブル（25m；CCZ-A25）でカメラDXC-M7と接続する。
   - CCU-M7のフロントパネル上のボリューム：
     （IRISボリュームを除き）全てメカニカルセンター
   - CCU-M7のフロントパネル上のIRISボリューム：
     左一杯 ↺
   - CCU-M7のフロントパネル上のスイッチ・セッティング
     IRIS AUTO／MANU SW：MANU
     GAMMA MANUAL／PRESET SW：PRESET
     SHUTTER SW：1

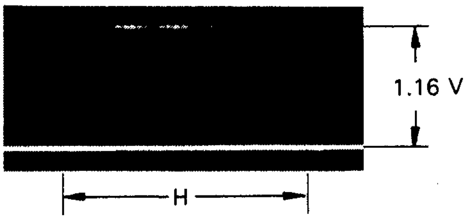
## AT-50 (2/2)

NOTE:

1. All voltage are dc, measured with a digital voltmeter. (input impedance: 10MΩ)
2. All waveforms are taken and DC voltage is measured in condition below.
   - Be sure that CCU-M7 is connected to DXC-M7 by the camera cable (25m: CCZ-A25).
   - Set the controls except the iris control on the front panel of CCU-M7 to the mechanical center.
   - Set the iris control on the front panel of CCU-M7 to the counterclockwise ↺.
   - Set the switches on the front panel of CCU-M7.
     IRIS AUTO/MANU SW : MANU
     GAMMA MANUAL/PRESET SW: PRESET
     SHUTTER SW : 1

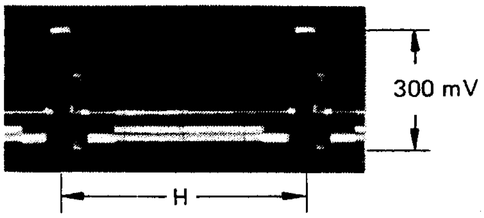
DISP SW→CHG

CN14-1pin
CHARACTOR
VIDEO OUT

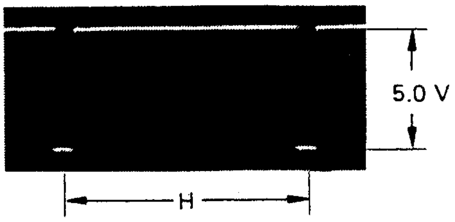


DISP SW→CHG
CAM mode, Lens: Close

CN14-2pin
CHARACTOR
BACK OUT



CN27-1pin
SYNC IN



## FRAME 回路図

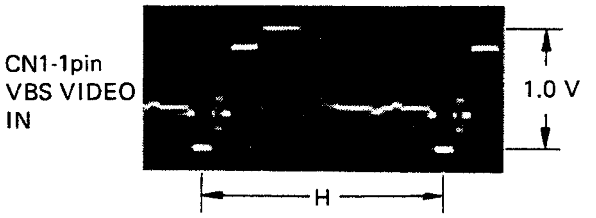
注意：

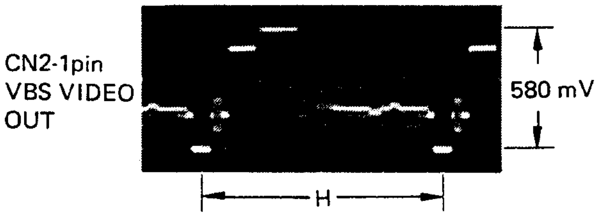
1. DC電圧はデジタル電圧計（入力インピーダンス10 MΩ）による値。
2. 波形写真及びDC電圧は下記条件で測定。
   - CCU-M7をCCZケーブル（25 m；CCZ-A25）でカメラDXC-M7と接続する。
   - カメラDXC-M7のスイッチ・セッティング
     S2 VTR スイッチ／IF-142基板：1／CCU
   - CCU-M7のスイッチ・セッティング
     MODEスイッチ：BARS
     CABLE COMPE FINE Yねじ：メカニカルセンター
     CABLE COMPE FINE Cねじ：メカニカルセンター

## FRAME

NOTE:

1. All voltage are dc, measured with a digital voltmeter. (input impedance: 10MΩ)
2. All waveforms are taken and DC voltage is measured in condition below.
   . Be sure that CCU-M7 is connected to DXC-M7 by the camera cable (25m: CCZ-A25).
   . Set the switches on CAMERA.
     S2 VTR /IF-142 board: 1/CCU
   . Set the switches on CCU.
     MODE selector : BARS
     CABLE COMPE FINE Y screw: Mechanical center
     CABLE COMPE FINE C screw: Mechanical center





## PS BLOCK

**注意：**

1. DC電圧はデジタル電圧計（入力インピーダンス10 MΩ）による値。
2. DC電圧は下記条件で測定。
   - CCU-M7をCCZケーブル（25 m；CCZ-A25）でカメラDXC-M7と接続する。
   - カメラDXC-M7のスイッチ・セッティング

     MAIN POWERスイッチ：ON
     POWER／PRE HEATスイッチ：ON

## PS BLOCK

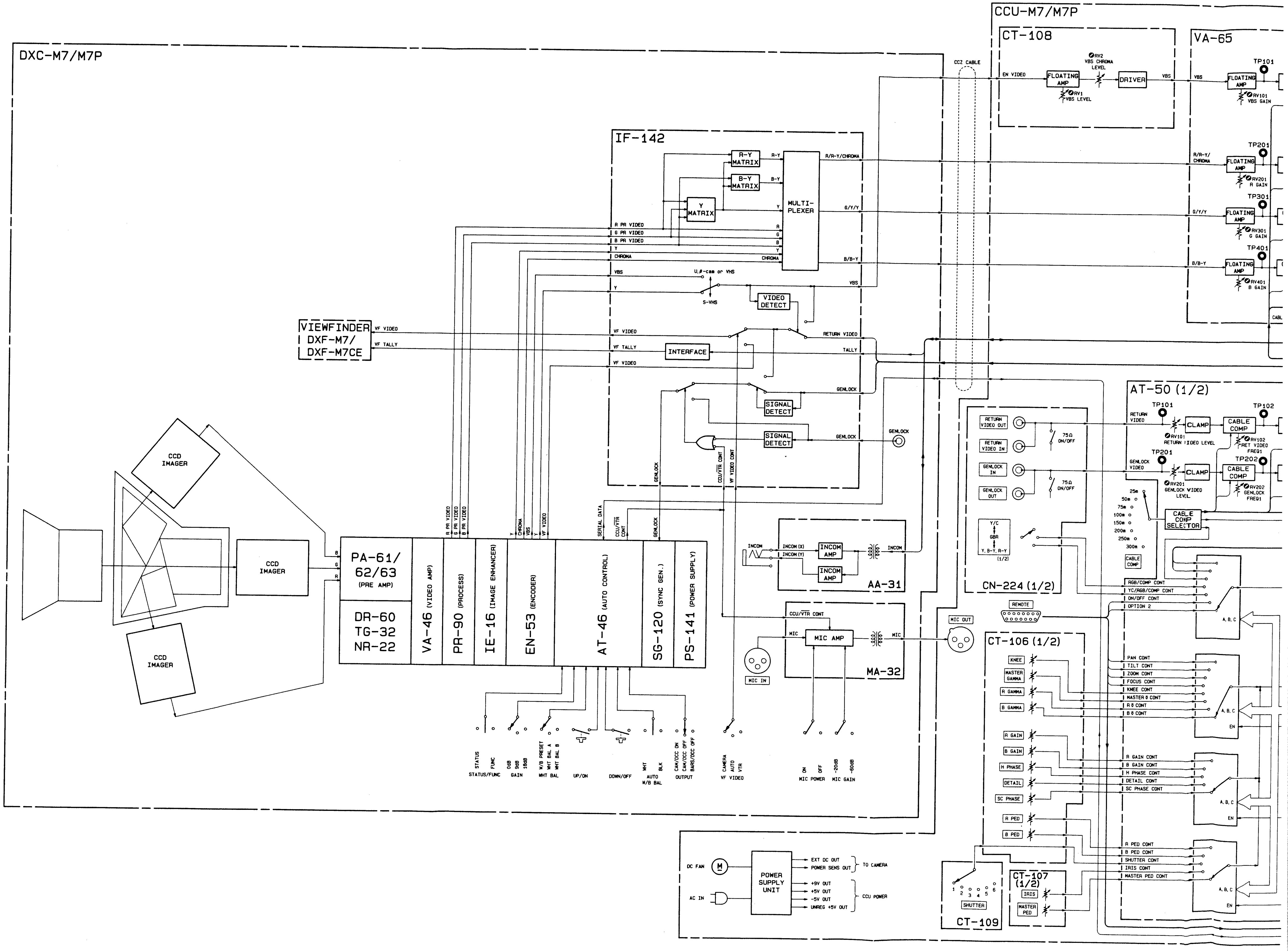
NOTE:

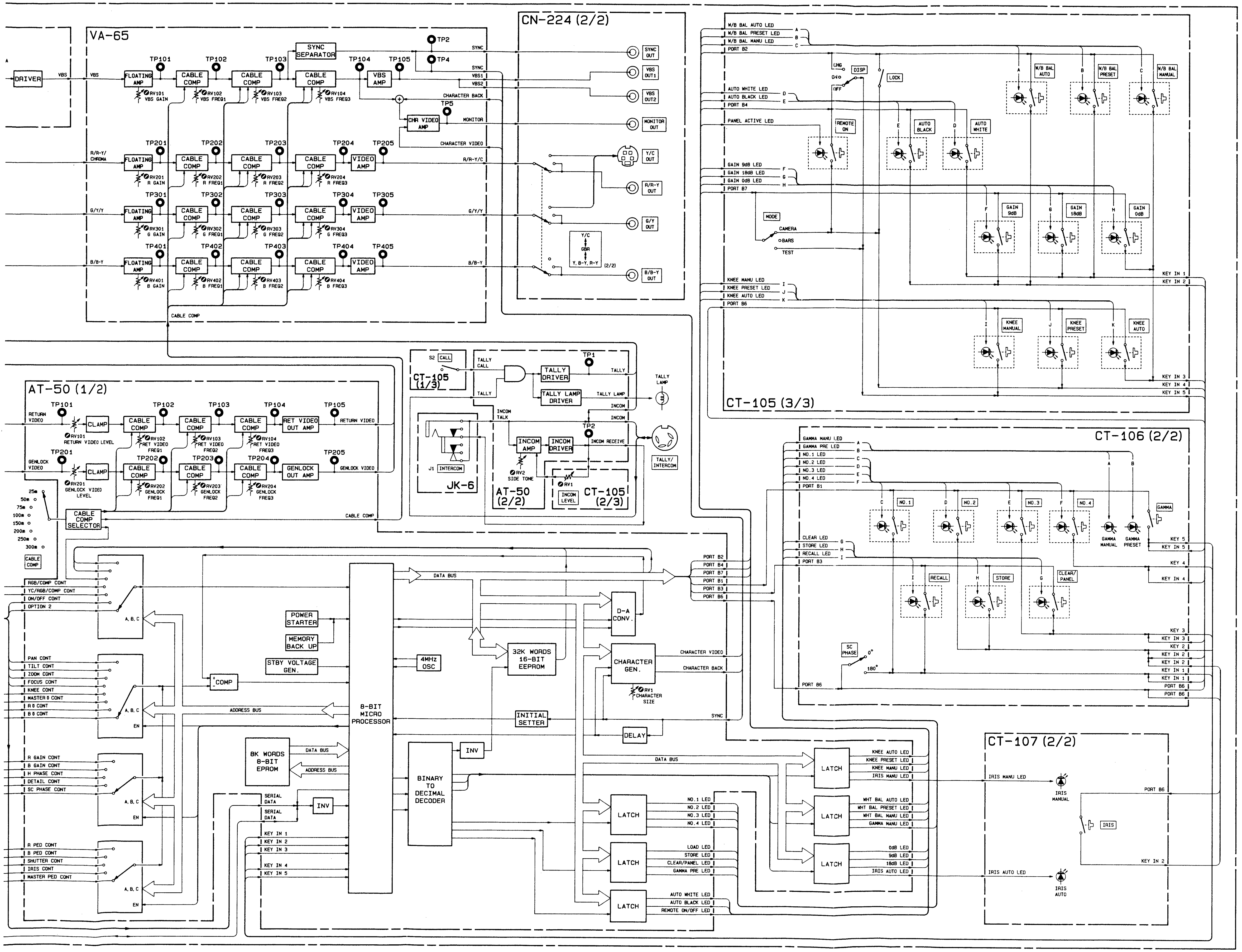
1. All voltage are dc, measured with a digital voltmeter. (input impedance: 10MΩ)
2. DC voltage is measured in condition below.
   - Be sure that CCU-M7 is connected to DXC-M7 by the camera cable (25m: CCZ-A25).
   - Set the switches on CAMERA.

     MAIN POWER switch : ON
     POWER/PREHEAT switch: ON

# SECTION A
# BLOCK DIAGRAMS

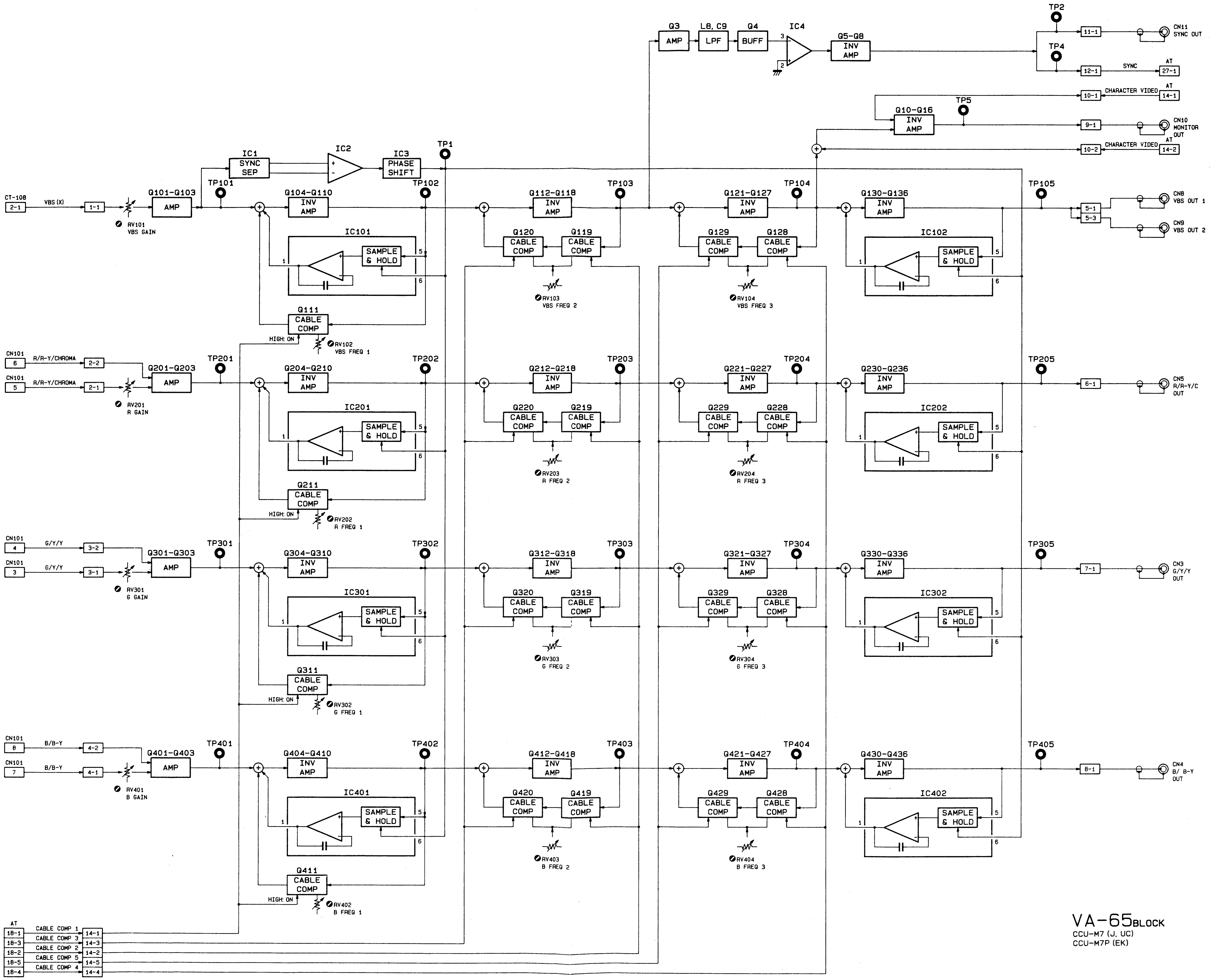
## OVERALL


DXC-M7/M7P
IF-142
R-Y MATRIX
B-Y MATRIX
Y MATRIX
MULTI-PLEXER
R/R-Y/CHROMA
G/Y/Y
B/B-Y
R PR VIDEO
G PR VIDEO
B PR VIDEO
Y
CHROMA
VBS
U,β-cam or VHS
S-VHS
VIDEO DETECT
VF VIDEO
VF TALLY
INTERFACE
RETURN VIDEO
TALLY
GENLOCK
SIGNAL DETECT
SIGNAL DETECT
VIEWFINDER DXF-M7/ DXF-M7CE
CCD IMAGER
CCD IMAGER
CCD IMAGER
PA-61/ 62/63 (PRE AMP)
DR-60 TG-32 NR-22
VA-46 (VIDEO AMP)
PR-90 (PROCESS)
IE-16 (IMAGE ENHANCER)
EN-53 (ENCODER)
AT-46 (AUTO CONTROL)
SG-120 (SYNC GEN.)
PS-141 (POWER SUPPLY)
SERIAL DATA
CCU/VTR CONT
STATUS/FUNC
GAIN
WHT BAL
UP/ON
DOWN/OFF
AUTO W/B BAL
OUTPUT
VF VIDEO
MIC POWER
MIC GAIN
INCOM
INCOM AMP
INCOM AMP
AA-31
CCU/VTR CONT
MIC
MIC AMP
MA-32
MIC IN
MIC OUT
CCZ CABLE
CCU-M7/M7P
CT-108
EN VIDEO
FLOATING AMP
RV2 VBS CHROMA LEVEL
RV1 VBS LEVEL
DRIVER
VBS
VA-65
TP101
FLOATING AMP
RV101 VBS GAIN
TP201
RV201 R GAIN
TP301
RV301 G GAIN
TP401
RV401 B GAIN
AT-50 (1/2)
RETURN VIDEO
CLAMP
CABLE COMP
RV101 RETURN VIDEO LEVEL
RV102 RET VIDEO FREQ1
GENLOCK VIDEO
RV201 GENLOCK VIDEO LEVEL
RV202 GENLOCK FREQ1
CABLE COMP SELECTOR
25m 50m 75m 100m 150m 200m 250m 300m
RETURN VIDEO OUT
RETURN VIDEO IN
GENLOCK IN
GENLOCK OUT
75Ω ON/OFF
Y/C GBR Y, B-Y, R-Y (1/2)
CABLE COMP
CN-224 (1/2)
REMOTE
RGB/COMP CONT
YC/RGB/COMP CONT
ON/OFF CONT
OPTION 2
CT-106 (1/2)
KNEE
MASTER GAMMA
R GAMMA
B GAMMA
R GAIN
B GAIN
H PHASE
DETAIL
SC PHASE
R PED
B PED
PAN CONT
TILT CONT
ZOOM CONT
FOCUS CONT
KNEE CONT
MASTER γ CONT
R γ CONT
B γ CONT
R GAIN CONT
B GAIN CONT
H PHASE CONT
DETAIL CONT
SC PHASE CONT
R PED CONT
B PED CONT
SHUTTER CONT
IRIS CONT
MASTER PED CONT
A, B, C
EN
CT-107 (1/2)
IRIS
MASTER PED
SHUTTER
CT-109
DC FAN
AC IN
POWER SUPPLY UNIT
EXT DC OUT
POWER SENS OUT
TO CAMERA
+9V OUT
+5V OUT
-5V OUT
UNREG +5V OUT
CCU POWER

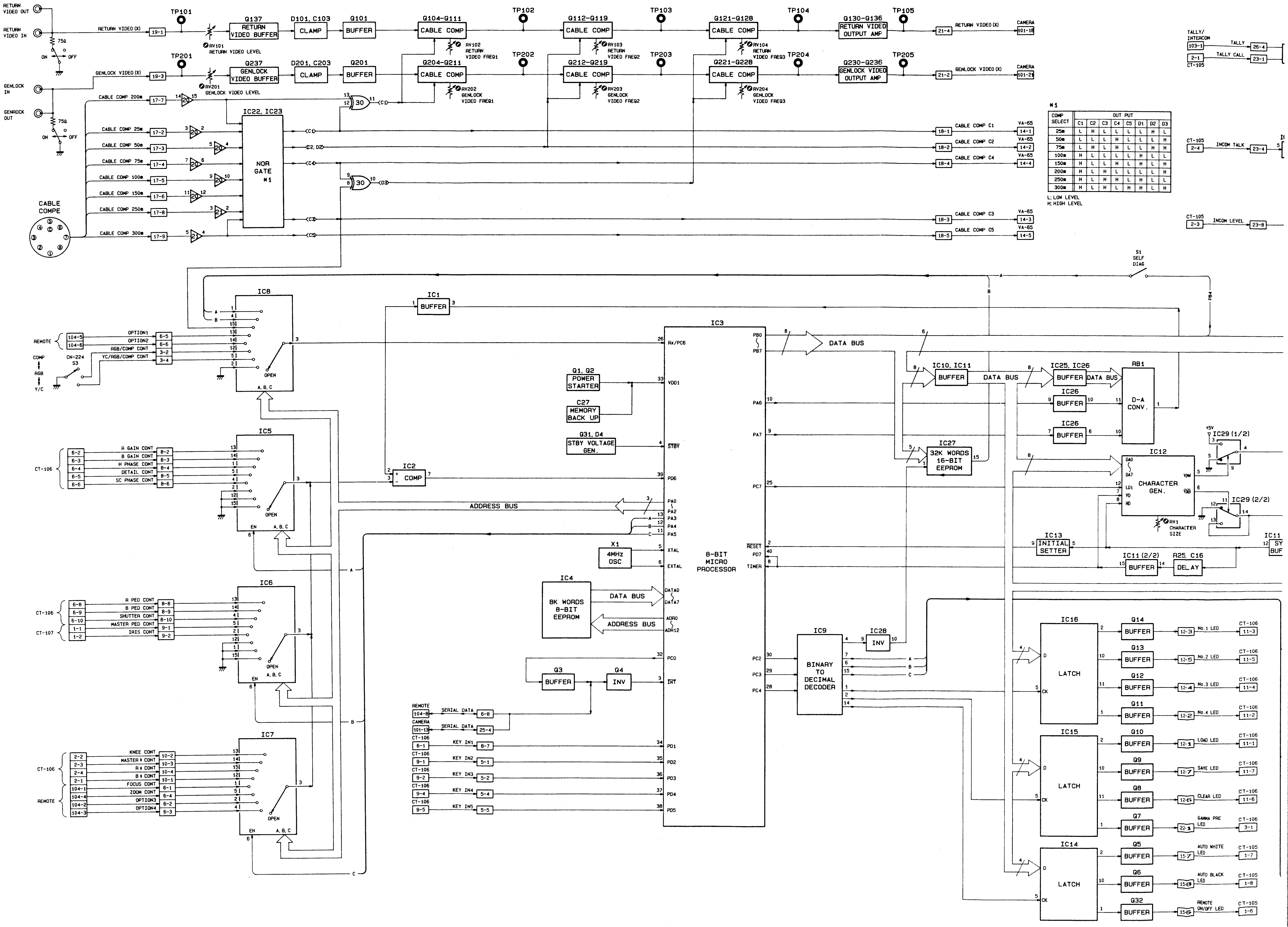

VA-65
DRIVER
VBS
FLOATING AMP
CABLE COMP
SYNC SEPARATOR
VBS AMP
CHR VIDEO AMP
VIDEO AMP
TP101
TP102
TP103
TP104
TP105
TP2
TP4
TP5
TP201
TP202
TP203
TP204
TP205
TP301
TP302
TP303
TP304
TP305
TP401
TP402
TP403
TP404
TP405
RV101 VBS GAIN
RV102 VBS FREQ1
RV103 VBS FREQ2
RV104 VBS FREQ3
RV201 R GAIN
RV202 R FREQ1
RV203 R FREQ2
RV204 R FREQ3
RV301 G GAIN
RV302 G FREQ1
RV303 G FREQ2
RV304 G FREQ3
RV401 B GAIN
RV402 B FREQ1
RV403 B FREQ2
RV404 B FREQ3
R/R-Y/CHROMA
G/Y/Y
B/B-Y
SYNC
VBS1
VBS2
CHARACTER BACK
MONITOR
CHARACTER VIDEO
R/R-Y/C
CABLE COMP
CN-224 (2/2)
SYNC OUT
VBS OUT1
VBS OUT2
MONITOR OUT
Y/C OUT
R/R-Y OUT
G/Y OUT
B/B-Y OUT
Y/C
GBR
Y, B-Y, R-Y
(2/2)
CT-105 (1/3)
S2 CALL
TALLY CALL
TALLY DRIVER
TALLY LAMP DRIVER
TALLY
TALLY LAMP
TP1
INCOM
INCOM TALK
INCOM AMP
INCOM DRIVER
INCOM RECEIVE
TP2
RV2 SIDE TONE
RV1
INCOM LEVEL
AT-50 (2/2)
CT-105 (2/3)
J1 INTERCOM
JK-6
TALLY/INTERCOM
AT-50 (1/2)
RETURN VIDEO
CLAMP
RET VIDEO OUT AMP
RV101 RETURN VIDEO LEVEL
RV102 RET VIDEO FREQ1
RV103 RET VIDEO FREQ2
RV104 RET VIDEO FREQ3
GENLOCK VIDEO
GENLOCK OUT AMP
RV201 GENLOCK VIDEO LEVEL
RV202 GENLOCK FREQ1
RV203 GENLOCK FREQ2
RV204 GENLOCK FREQ3
25m
50m
75m
100m
150m
200m
250m
300m
CABLE COMP
CABLE COMP SELECTOR
RGB/COMP CONT
YC/RGB/COMP CONT
ON/OFF CONT
OPTION 2
A, B, C
PAN CONT
TILT CONT
ZOOM CONT
FOCUS CONT
KNEE CONT
MASTER B CONT
R B CONT
B B CONT
EN
R GAIN CONT
B GAIN CONT
H PHASE CONT
DETAIL CONT
SC PHASE CONT
R PED CONT
B PED CONT
SHUTTER CONT
IRIS CONT
MASTER PED CONT
POWER STARTER
MEMORY BACK UP
STBY VOLTAGE GEN.
COMP
DATA BUS
ADDRESS BUS
8-BIT MICRO PROCESSOR
4MHz OSC
32K WORDS 16-BIT EEPROM
D-A CONV.
CHARACTER GEN.
RV1 CHARACTER SIZE
INITIAL SETTER
DELAY
8K WORDS 8-BIT EPROM
INV
BINARY TO DECIMAL DECODER
SERIAL DATA
KEY IN 1
KEY IN 2
KEY IN 3
KEY IN 4
KEY IN 5
LATCH
NO.1 LED
NO.2 LED
NO.3 LED
NO.4 LED
LOAD LED
STORE LED
CLEAR/PANEL LED
GAMMA PRE LED
AUTO WHITE LED
AUTO BLACK LED
REMOTE ON/OFF LED
KNEE AUTO LED
KNEE PRESET LED
KNEE MANU LED
IRIS MANU LED
WHT BAL AUTO LED
WHT BAL PRESET LED
WHT BAL MANU LED
GAMMA MANU LED
0dB LED
9dB LED
18dB LED
IRIS AUTO LED
PORT B2
PORT B4
PORT B7
PORT B1
PORT B3
PORT B6
CHARACTER VIDEO
CHARACTER BACK
SYNC
W/B BAL AUTO LED
W/B BAL PRESET LED
W/B BAL MANU LED
AUTO WHITE LED
AUTO BLACK LED
PANEL ACTIVE LED
CHG
ON
OFF
DISP
LOCK
W/B BAL AUTO
W/B BAL PRESET
W/B BAL MANUAL
REMOTE ON
AUTO BLACK
AUTO WHITE
GAIN 9dB LED
GAIN 18dB LED
GAIN 0dB LED
MODE
CAMERA
BARS
TEST
GAIN 9dB
GAIN 18dB
GAIN 0dB
KNEE MANU LED
KNEE PRESET LED
KNEE AUTO LED
KNEE MANUAL
KNEE PRESET
KNEE AUTO
CT-105 (3/3)
KEY IN 1
KEY IN 2
KEY IN 3
KEY IN 4
KEY IN 5
CT-106 (2/2)
GAMMA MANU LED
GAMMA PRE LED
NO.1 LED
NO.2 LED
NO.3 LED
NO.4 LED
NO.1
NO.2
NO.3
NO.4
GAMMA
GAMMA MANUAL
GAMMA PRESET
CLEAR LED
STORE LED
RECALL LED
RECALL
STORE
CLEAR/PANEL
SC PHASE
0°
180°
KEY 3
KEY 2
KEY 4
KEY 5
CT-107 (2/2)
IRIS MANUAL
IRIS
IRIS AUTO
PORT B6
KEY IN 2

OVERALL BLOCK
CCU-M7 (J, UC)
CCU-M7P (EK)

# VA-65 BLOCK (VIDEO AMPLIFIER)


CT-108
2-1
VBS (X)
1-1
RV101
VBS GAIN
Q101-Q103
AMP
TP101
IC1
SYNC SEP
IC2
IC3
PHASE SHIFT
TP1
TP102
Q104-Q110
INV AMP
IC101
SAMPLE & HOLD
Q111
CABLE COMP
HIGH: ON
RV102
VBS FREQ 1
Q112-Q118
INV AMP
TP103
Q120
CABLE COMP
Q119
CABLE COMP
RV103
VBS FREQ 2
Q3
AMP
L8, C9
LPF
Q4
BUFF
IC4
Q5-Q8
INV AMP
Q121-Q127
INV AMP
TP104
Q129
CABLE COMP
Q128
CABLE COMP
RV104
VBS FREQ 3
Q130-Q136
INV AMP
IC102
SAMPLE & HOLD
Q10-Q16
INV AMP
TP5
TP2
TP4
11-1
CN11
SYNC OUT
12-1
SYNC
AT
27-1
10-1
CHARACTER VIDEO
AT
14-1
9-1
CN10
MONITOR
OUT
10-2
CHARACTER VIDEO
AT
14-2
TP105
5-1
5-3
CN8
VBS OUT 1
CN9
VBS OUT 2
CN101
6
R/R-Y/CHROMA
2-2
CN101
5
R/R-Y/CHROMA
2-1
RV201
R GAIN
Q201-Q203
AMP
TP201
Q204-Q210
INV AMP
TP202
IC201
SAMPLE & HOLD
Q211
CABLE COMP
HIGH: ON
RV202
R FREQ 1
Q212-Q218
INV AMP
TP203
Q220
CABLE COMP
Q219
CABLE COMP
RV203
R FREQ 2
Q221-Q227
INV AMP
TP204
Q229
CABLE COMP
Q228
CABLE COMP
RV204
R FREQ 3
Q230-Q236
INV AMP
IC202
SAMPLE & HOLD
TP205
6-1
CN5
R/R-Y/C
OUT
CN101
4
G/Y/Y
3-2
CN101
3
G/Y/Y
3-1
RV301
G GAIN
Q301-Q303
AMP
TP301
Q304-Q310
INV AMP
TP302
IC301
SAMPLE & HOLD
Q311
CABLE COMP
HIGH: ON
RV302
G FREQ 1
Q312-Q318
INV AMP
TP303
Q320
CABLE COMP
Q319
CABLE COMP
RV303
G FREQ 2
Q321-Q327
INV AMP
TP304
Q329
CABLE COMP
Q328
CABLE COMP
RV304
G FREQ 3
Q330-Q336
INV AMP
IC302
SAMPLE & HOLD
TP305
7-1
CN3
G/Y/Y
OUT
CN101
8
B/B-Y
4-2
CN101
7
B/B-Y
4-1
RV401
B GAIN
Q401-Q403
AMP
TP401
Q404-Q410
INV AMP
TP402
IC401
SAMPLE & HOLD
Q411
CABLE COMP
HIGH: ON
RV402
B FREQ 1
Q412-Q418
INV AMP
TP403
Q420
CABLE COMP
Q419
CABLE COMP
RV403
B FREQ 2
Q421-Q427
INV AMP
TP404
Q429
CABLE COMP
Q428
CABLE COMP
RV404
B FREQ 3
Q430-Q436
INV AMP
IC402
SAMPLE & HOLD
TP405
8-1
CN4
B/ B-Y
OUT
AT
18-1
CABLE COMP 1
14-1
18-3
CABLE COMP 3
14-3
18-2
CABLE COMP 2
14-2
18-5
CABLE COMP 5
14-5
18-4
CABLE COMP 4
14-4
VA-65BLOCK
CCU-M7 (J, UC)
CCU-M7P (EK)

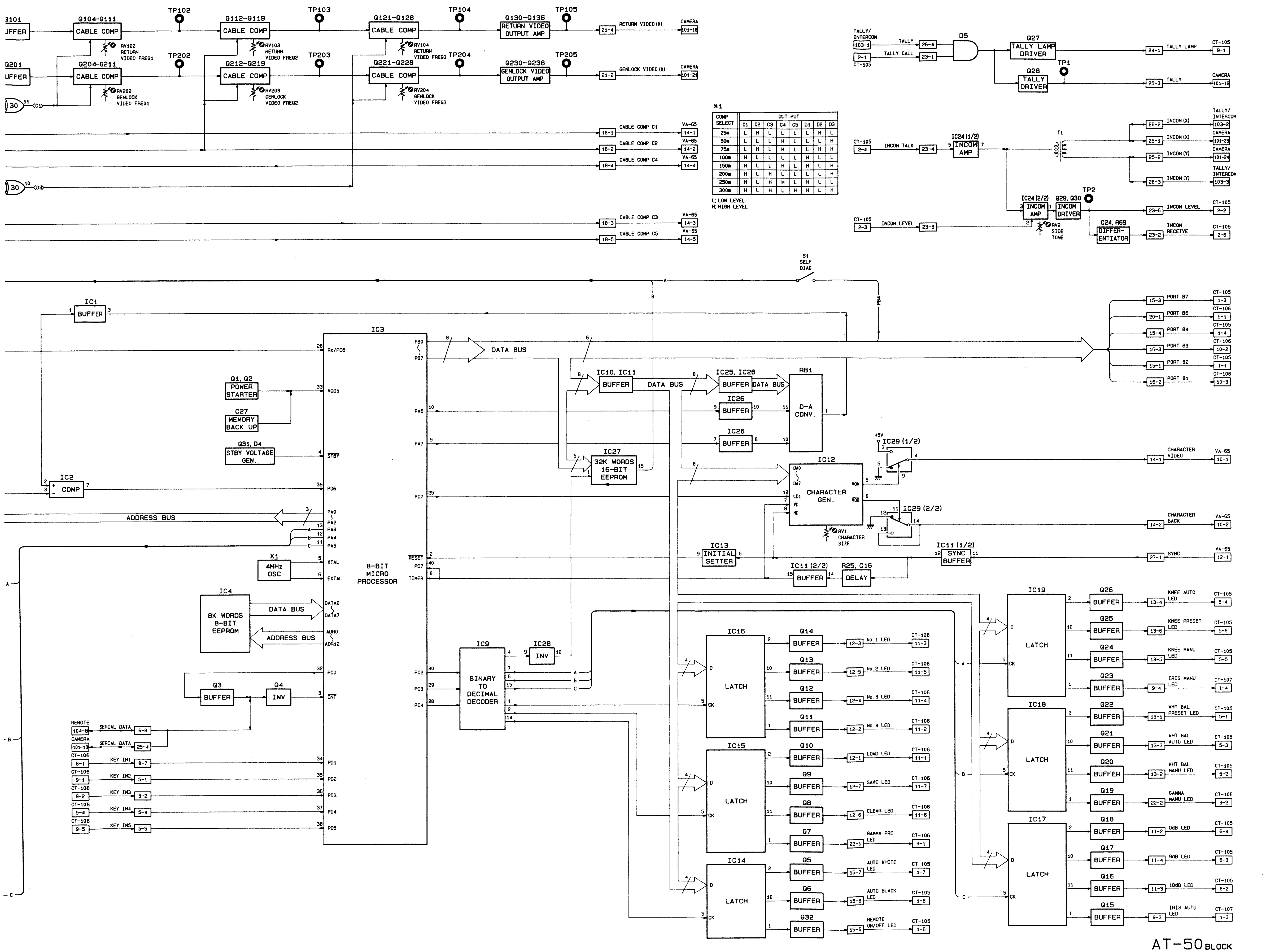
# AT-50 BLOCK (AUTO CONTROL)


RETURN VIDEO OUT
RETURN VIDEO IN
GENLOCK IN
GENLOCK OUT
75Ω
ON OFF
RETURN VIDEO (X)
GENLOCK VIDEO (X)
TP101
TP201
Q137 RETURN VIDEO BUFFER
Q237 GENLOCK VIDEO BUFFER
RV101 RETURN VIDEO LEVEL
RV201 GENLOCK VIDEO LEVEL
D101, C103 CLAMP
D201, C203 CLAMP
Q101 BUFFER
Q201 BUFFER
Q104-Q111 CABLE COMP
Q204-Q211 CABLE COMP
RV102 RETURN VIDEO FREQ1
RV202 GENLOCK VIDEO FREQ1
TP102
TP202
Q112-Q119 CABLE COMP
Q212-Q219 CABLE COMP
RV103 RETURN VIDEO FREQ2
RV203 GENLOCK VIDEO FREQ2
TP103
TP203
Q121-Q128 CABLE COMP
Q221-Q228 CABLE COMP
RV104 RETURN VIDEO FREQ3
RV204 GENLOCK VIDEO FREQ3
TP104
TP204
Q130-Q136 RETURN VIDEO OUTPUT AMP
Q230-Q236 GENLOCK VIDEO OUTPUT AMP
TP105
TP205
RETURN VIDEO (X)
GENLOCK VIDEO (X)
CAMERA 101-18
CAMERA 101-21
CABLE COMPE
CABLE COMP 200m
CABLE COMP 25m
CABLE COMP 50m
CABLE COMP 75m
CABLE COMP 100m
CABLE COMP 150m
CABLE COMP 250m
CABLE COMP 300m
IC22, IC23 NOR GATE *1
CABLE COMP C1
CABLE COMP C2
CABLE COMP C4
CABLE COMP C3
CABLE COMP C5
VA-65
TALLY/INTERCOM
TALLY
TALLY CALL
CT-105
INCOM TALK
INCOM LEVEL
S1 SELF DIAG
IC8
REMOTE
OPTION1
OPTION2
RGB/COMP CONT
YC/RGB/COMP CONT
COMP RGB Y/C
CN-224
S3
OPEN
A, B, C
IC1 BUFFER
IC3
DATA BUS
Q1, Q2 POWER STARTER
C27 MEMORY BACK UP
Q31, D4 STBY VOLTAGE GEN.
IC10, IC11 BUFFER
IC25, IC26 BUFFER
RB1 D-A CONV.
IC26 BUFFER
IC27 32K WORDS 16-BIT EEPROM
IC12 CHARACTER GEN.
IC29 (1/2)
IC29 (2/2)
RV1 CHARACTER SIZE
IC13 INITIAL SETTER
IC11 (2/2) BUFFER
R25, C16 DELAY
IC5
CT-106
R GAIN CONT
B GAIN CONT
H PHASE CONT
DETAIL CONT
SC PHASE CONT
IC2 COMP
ADDRESS BUS
X1 4MHz OSC
8-BIT MICRO PROCESSOR
IC6
CT-107
R PED CONT
B PED CONT
SHUTTER CONT
MASTER PED CONT
IRIS CONT
IC4 8K WORDS 8-BIT EEPROM
DATA BUS
ADDRESS BUS
IC9 BINARY TO DECIMAL DECODER
IC28 INV
Q3 BUFFER
Q4 INV
SERIAL DATA
KEY IN1
KEY IN2
KEY IN3
KEY IN4
KEY IN5
IC7
KNEE CONT
MASTER γ CONT
R γ CONT
B γ CONT
FOCUS CONT
ZOOM CONT
OPTION3
OPTION4
IC16 LATCH
IC15 LATCH
IC14 LATCH
Q14 BUFFER
Q13 BUFFER
Q12 BUFFER
Q11 BUFFER
Q10 BUFFER
Q9 BUFFER
Q8 BUFFER
Q7 BUFFER
Q5 BUFFER
Q6 BUFFER
Q32 BUFFER
No.1 LED
No.2 LED
No.3 LED
No.4 LED
LOAD LED
SAVE LED
CLEAR LED
GAMMA PRE LED
AUTO WHITE LED
AUTO BLACK LED
REMOTE ON/OFF LED

*1

| COMP SELECT | OUT PUT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | C1 | C2 | C3 | C4 | C5 | D1 | D2 | D3 |
| 25m | L | H | L | L | L | L | H | L |
| 50m | L | L | L | H | L | L | L | H |
| 75m | L | H | L | H | L | L | H | H |
| 100m | H | L | L | L | L | H | L | L |
| 150m | H | L | L | H | L | H | L | H |
| 200m | H | L | H | L | L | L | L | H |
| 250m | H | L | H | H | L | H | L | L |
| 300m | H | L | H | L | H | H | L | H |

L; LOW LEVEL
H; HIGH LEVEL


Q101
UFFER
Q201
UFFER
30
Q104-Q111
CABLE COMP
RV102 RETURN VIDEO FREQ1
Q204-Q211
CABLE COMP
RV202 GENLOCK VIDEO FREQ1
TP102
TP202
Q112-Q119
CABLE COMP
RV103 RETURN VIDEO FREQ2
Q212-Q219
CABLE COMP
RV203 GENLOCK VIDEO FREQ2
TP103
TP203
Q121-Q128
CABLE COMP
RV104 RETURN VIDEO FREQ3
Q221-Q228
CABLE COMP
RV204 GENLOCK VIDEO FREQ3
TP104
TP204
Q130-Q136
RETURN VIDEO OUTPUT AMP
Q230-Q236
GENLOCK VIDEO OUTPUT AMP
TP105
TP205
21-4 RETURN VIDEO (X) CAMERA 101-18
21-2 GENLOCK VIDEO (X) CAMERA 101-21
18-1 CABLE COMP C1 VA-65 14-1
18-2 CABLE COMP C2 VA-65 14-2
18-4 CABLE COMP C4 VA-65 14-4
18-3 CABLE COMP C3 VA-65 14-3
18-5 CABLE COMP C5 VA-65 14-5
TALLY/INTERCOM 103-1 TALLY 26-4
CT-105 2-1 TALLY CALL 23-1
D5
Q27 TALLY LAMP DRIVER
24-1 TALLY LAMP CT-105 9-1
Q28 TALLY DRIVER
TP1
25-3 TALLY CAMERA 101-12
CT-105 2-4 INCOM TALK 23-4
IC24 (1/2) INCOM AMP
T1
26-2 INCOM (X) TALLY/INTERCOM 103-2
25-1 INCOM (X) CAMERA 101-23
25-2 INCOM (Y) CAMERA 101-24
26-3 INCOM (Y) TALLY/INTERCOM 103-3
IC24 (2/2) INCOM AMP
Q29, Q30 INCOM DRIVER
TP2
23-6 INCOM LEVEL CT-105 2-2
CT-105 2-3 INCOM LEVEL 23-8
RV2 SIDE TONE
C24, R69 DIFFER-ENTIATOR
23-2 INCOM RECEIVE CT-105 2-6
S1 SELF DIAG
PB4
IC1 BUFFER
IC2 COMP
IC3
8-BIT MICRO PROCESSOR
Rx/PC6
VDD1
STBY
PD6
PA0
PA2
PA3
PA4
PA5
XTAL
EXTAL
DATA0
DATA7
ADR0
ADR12
PC0
INT
PD1
PD2
PD3
PD4
PD5
PB0
PB7
PA6
PA7
PC7
RESET
PD7
TIMER
PC2
PC3
PC4
Q1, Q2 POWER STARTER
C27 MEMORY BACK UP
Q31, D4 STBY VOLTAGE GEN.
ADDRESS BUS
X1 4MHz OSC
IC4 8K WORDS 8-BIT EEPROM
DATA BUS
ADDRESS BUS
Q3 BUFFER
Q4 INV
REMOTE 104-8 SERIAL DATA 6-8
CAMERA 101-13 SERIAL DATA 25-4
CT-106 6-1 KEY IN1 8-7
CT-106 9-1 KEY IN2 5-1
CT-106 9-2 KEY IN3 5-2
CT-106 9-4 KEY IN4 5-4
CT-106 9-5 KEY IN5 5-5
DATA BUS
IC10, IC11 BUFFER
DATA BUS
IC25, IC26 BUFFER
DATA BUS
IC26 BUFFER
IC26 BUFFER
RB1 D-A CONV.
IC27 32K WORDS 16-BIT EEPROM
IC12 CHARACTER GEN.
DA0
DA7
LD1
VD
HD
VOW
VOB
RV1 CHARACTER SIZE
+5V
IC29 (1/2)
IC29 (2/2)
IC13 INITIAL SETTER
IC11 (2/2) BUFFER
R25, C16 DELAY
IC11 (1/2) SYNC BUFFER
15-3 PORT B7 CT-105 1-3
20-1 PORT B6 CT-106 5-1
15-4 PORT B4 CT-105 1-4
16-3 PORT B3 CT-106 10-2
15-1 PORT B2 CT-105 1-1
16-2 PORT B1 CT-106 10-3
14-1 CHARACTER VIDEO VA-65 10-1
14-2 CHARACTER BACK VA-65 10-2
27-1 SYNC VA-65 12-1
IC9 BINARY TO DECIMAL DECODER
IC28 INV
IC16 LATCH
IC15 LATCH
IC14 LATCH
D
CK
Q14 BUFFER 12-3 No.1 LED CT-106 11-3
Q13 BUFFER 12-5 No.2 LED CT-106 11-5
Q12 BUFFER 12-4 No.3 LED CT-106 11-4
Q11 BUFFER 12-2 No.4 LED CT-106 11-2
Q10 BUFFER 12-1 LOAD LED CT-106 11-1
Q9 BUFFER 12-7 SAVE LED CT-106 11-7
Q8 BUFFER 12-6 CLEAR LED CT-106 11-6
Q7 BUFFER 22-1 GAMMA PRE LED CT-106 3-1
Q5 BUFFER 15-7 AUTO WHITE LED CT-105 1-7
Q6 BUFFER 15-8 AUTO BLACK LED CT-105 1-8
Q32 BUFFER 15-6 REMOTE ON/OFF LED CT-105 1-6
IC19 LATCH
IC18 LATCH
IC17 LATCH
Q26 BUFFER 13-4 KNEE AUTO LED CT-105 5-4
Q25 BUFFER 13-6 KNEE PRESET LED CT-105 5-6
Q24 BUFFER 13-5 KNEE MANU LED CT-105 5-5
Q23 BUFFER 9-4 IRIS MANU LED CT-107 1-4
Q22 BUFFER 13-1 WHT BAL PRESET LED CT-105 5-1
Q21 BUFFER 13-3 WHT BAL AUTO LED CT-105 5-3
Q20 BUFFER 13-2 WHT BAL MANU LED CT-105 5-2
Q19 BUFFER 22-2 GAMMA MANU LED CT-106 3-2
Q18 BUFFER 11-2 0dB LED CT-105 6-4
Q17 BUFFER 11-4 9dB LED CT-105 6-3
Q16 BUFFER 11-3 18dB LED CT-105 6-2
Q15 BUFFER 9-3 IRIS AUTO LED CT-107 1-3
A
B
C

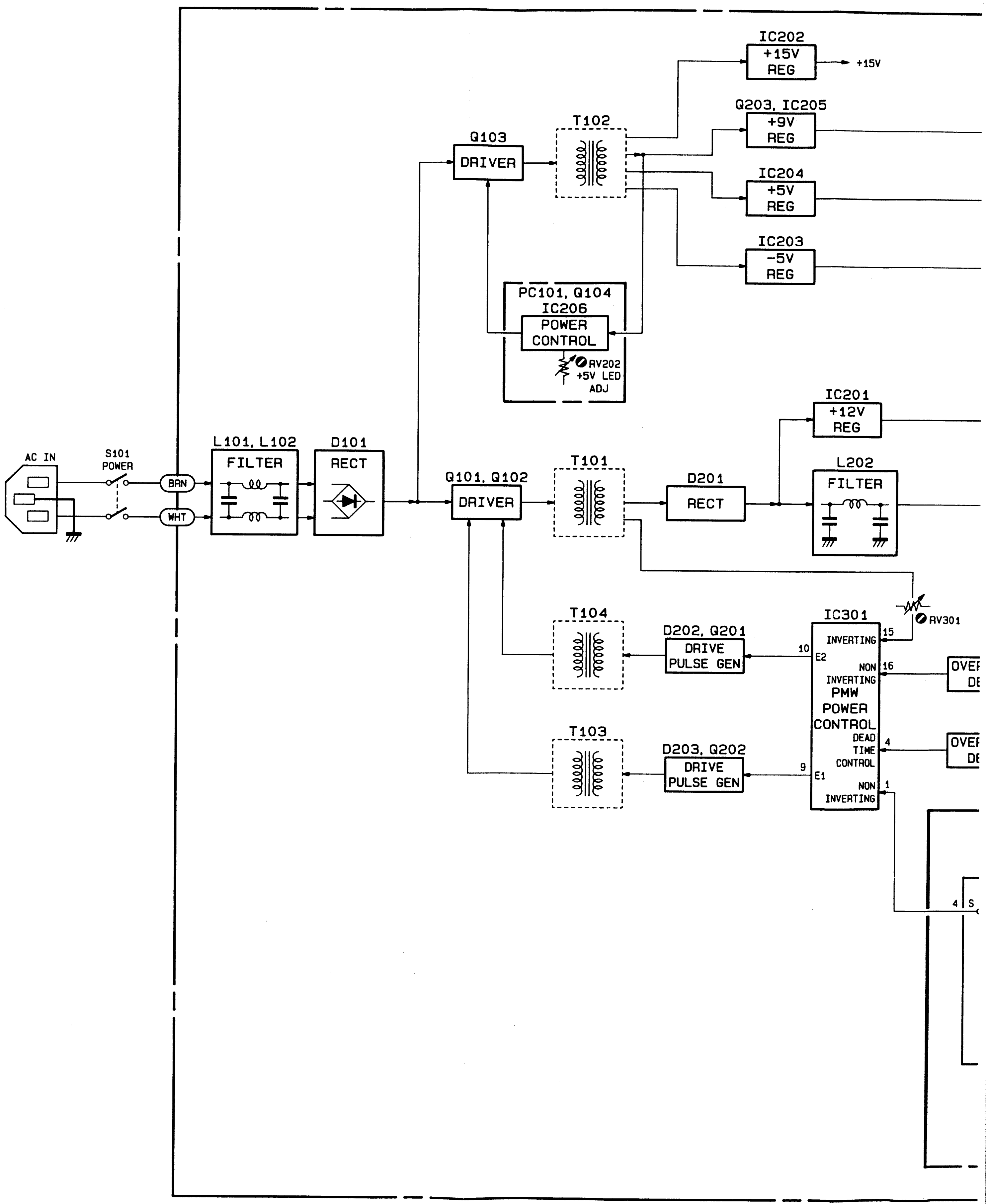
*1

| COMP SELECT | OUT PUT | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | C1 | C2 | C3 | C4 | C5 | D1 | D2 | D3 |
| 25m | L | H | L | L | L | L | H | L |
| 50m | L | L | L | H | L | L | L | H |
| 75m | L | H | L | H | L | L | H | H |
| 100m | H | L | L | L | L | H | L | L |
| 150m | H | L | L | H | L | H | L | H |
| 200m | H | L | H | L | L | L | L | H |
| 250m | H | L | H | H | L | H | L | L |
| 300m | H | L | H | L | H | H | L | H |

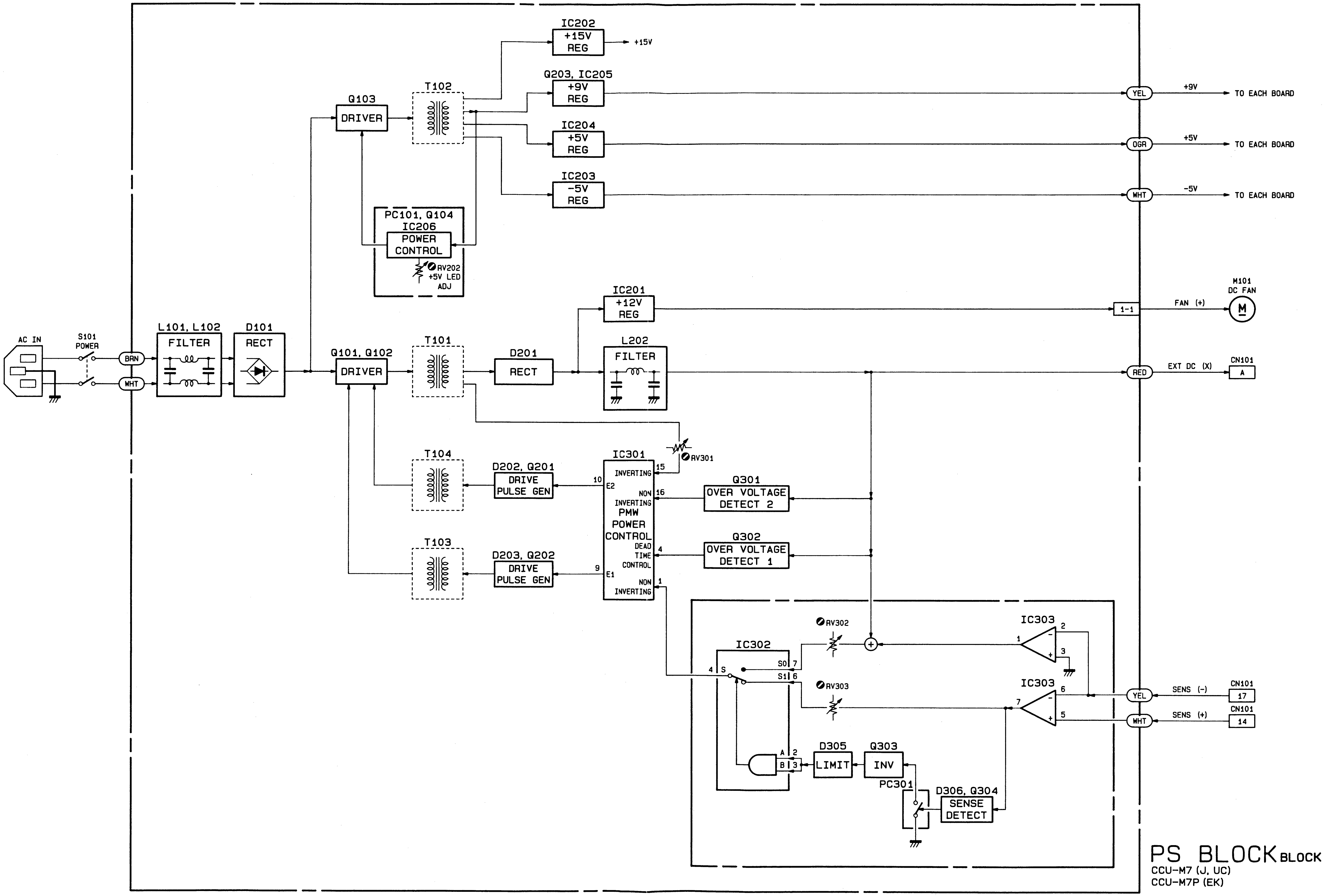
L; LOW LEVEL
H; HIGH LEVEL

AT-50 BLOCK
CCU-M7 (J, UC)
CCU-M7P (EK)

# PS BLOCK BLOCK (POWER SUPPLY)


IC202
+15V REG
+15V
Q203, IC205
+9V REG
IC204
+5V REG
IC203
-5V REG
Q103
DRIVER
T102
PC101, Q104
IC206
POWER CONTROL
RV202
+5V LED ADJ
IC201
+12V REG
AC IN
S101
POWER
BRN
WHT
L101, L102
FILTER
D101
RECT
Q101, Q102
DRIVER
T101
D201
RECT
L202
FILTER
RV301
IC301
INVERTING
15
10
E2
NON INVERTING
16
PMW POWER CONTROL
DEAD TIME CONTROL
4
9
E1
NON INVERTING
1
T104
D202, Q201
DRIVE PULSE GEN
T103
D203, Q202
DRIVE PULSE GEN
OVEF
DE
OVEF
DE
4
S

## PS BLOCK BLOCK (POWER SUPPLY)


AC IN
S101
POWER
BRN
WHT
L101, L102
FILTER
D101
RECT
Q103
DRIVER
T102
IC202
+15V
REG
+15V
Q203, IC205
+9V
REG
IC204
+5V
REG
IC203
-5V
REG
PC101, Q104
IC206
POWER
CONTROL
RV202
+5V LED
ADJ
YEL
+9V
TO EACH BOARD
OGR
+5V
TO EACH BOARD
WHT
-5V
TO EACH BOARD
IC201
+12V
REG
1-1
FAN (+)
M101
DC FAN
M
Q101, Q102
DRIVER
T101
D201
RECT
L202
FILTER
RED
EXT DC (X)
CN101
A
RV301
T104
D202, Q201
DRIVE
PULSE GEN
IC301
INVERTING
15
10
E2
NON INVERTING
16
PMW
POWER
CONTROL
DEAD TIME CONTROL
4
9
E1
NON INVERTING
1
Q301
OVER VOLTAGE
DETECT 2
Q302
OVER VOLTAGE
DETECT 1
T103
D203, Q202
DRIVE
PULSE GEN
RV302
IC303
2
1
3
IC302
4
S
S0
7
S1
6
RV303
IC303
6
7
5
YEL
SENS (-)
CN101
17
WHT
SENS (+)
CN101
14
A
2
B
3
D305
LIMIT
Q303
INV
PC301
D306, Q304
SENSE
DETECT
PS BLOCK BLOCK
CCU-M7 (J, UC)
CCU-M7P (EK)

## VA-65回路図

注意：

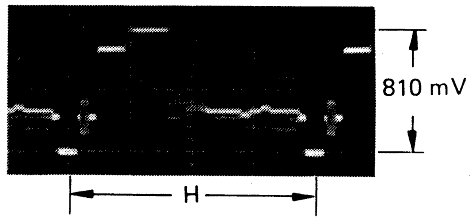
1. DC電圧はデジタル電圧計（入力インピーダンス10 MΩ）による値。
2. 波形写真及びDC電圧は下記条件で測定。
   - CCU-M7をCCZケーブル（25 m；CCZ-A25）でカメラDXC-M7と接続する。
   - カメラDXC-M7のスイッチ・セッティング
     S2 SET UP スイッチ／AT-46基板：ON
     S1 OUTPUT スイッチ／IF-142基板：AUTO
     S2 VTR スイッチ／IF-142基板：1／CCU
   - CCU-M7のスイッチ・セッティング
     MODEスイッチ：BARS
     CABLE COMPE FINE Yねじ：メカニカルセンター
     CABLE COMPE FINE Cねじ：メカニカルセンター
     CABLE COMP スイッチ：25 m
     映像信号切り換えスイッチ：Y, R-Y, B-Y

## VA-65

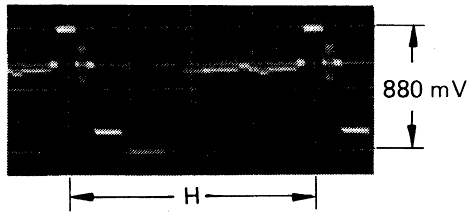
NOTE:

1. All voltage are dc, measured with a digital voltmeter. (input impedance: 10MΩ)
2. All waveforms are taken and DC voltage is measured in condition below.
   - Be sure that CCU-M7 is connected to DXC-M7 by the camera cable (25m: CCZ-A25).
   - Set the switches on CAMERA.
     S2 SET UP /AT-46 board : ON
     S1 OUTPUT /IF-142 board: AUTO
     S2 VTR /IF-142 board : 1/CCU
   - Set the switches on CCU.
     MODE selector : BARS
     CABLE COMPE FINE Y screw: Mechanical center
     CABLE COMPE FINE C screw: Mechanical center
     CABLE COMPE selector : 25m
     Video output selector : Y, R-Y, B-Y

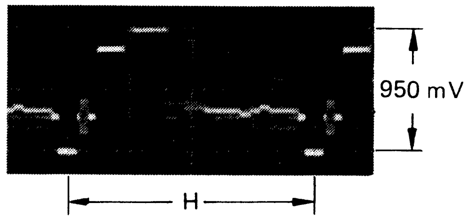
TP101
VBS VIDEO
IN



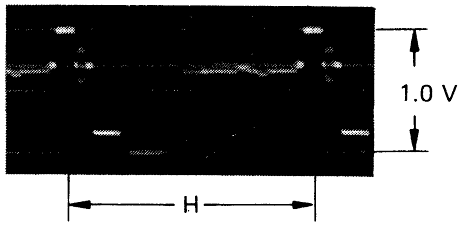
TP102
VBS VIDEO



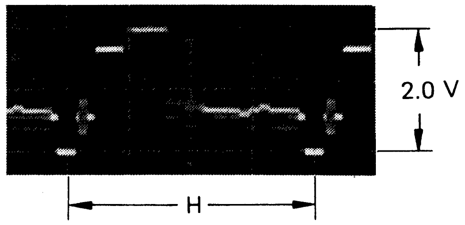
TP103
VBS VIDEO



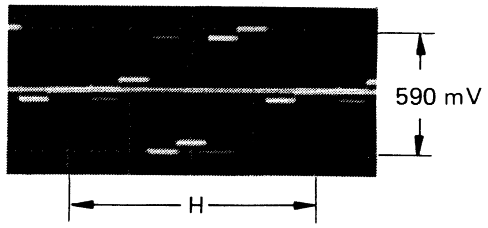
TP104
VBS VIDEO



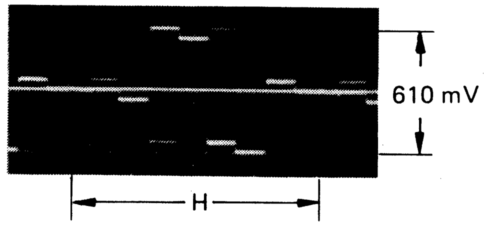
TP105
VBS VIDEO
OUT



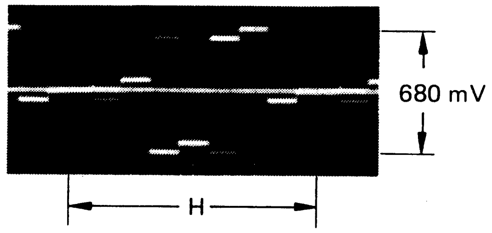
TP201
R-Y VIDEO



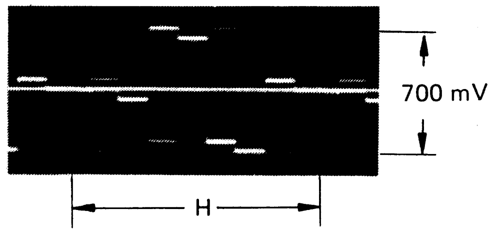
TP202
R-Y VIDEO



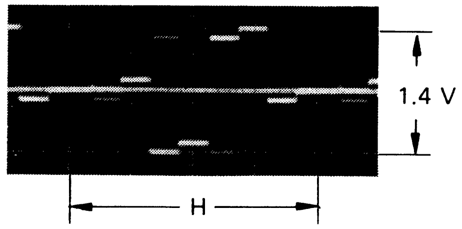
TP203
R-Y VIDEO



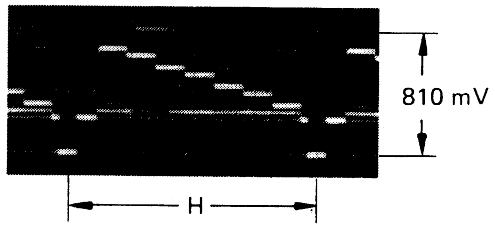
TP204
R-Y VIDEO



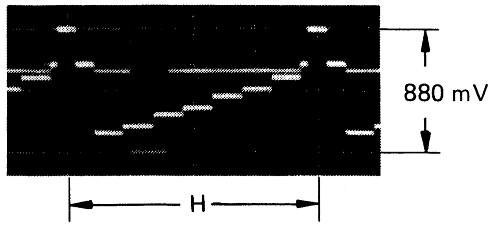
TP205
R-Y VIDEO



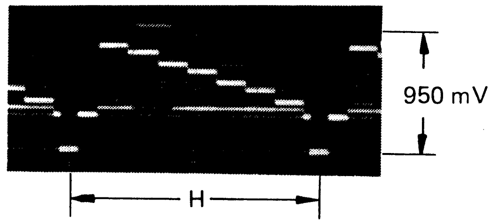
TP301
Y VIDEO



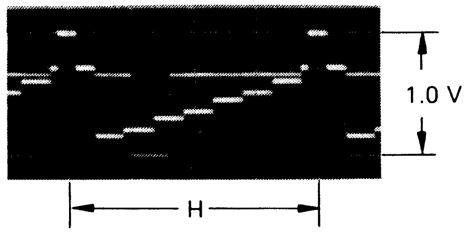
TP302
Y VIDEO



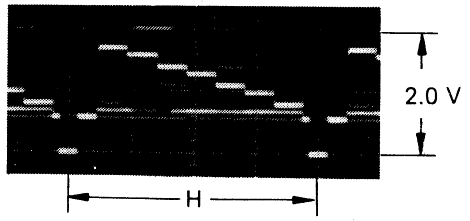
TP303
Y VIDEO



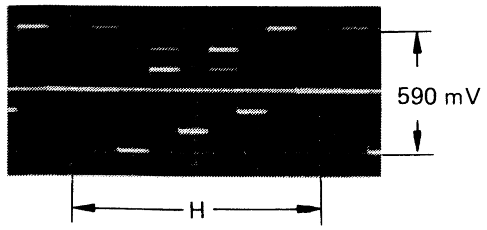
TP304
Y VIDEO



TP305
Y VIDEO



TP401
B-Y VIDEO



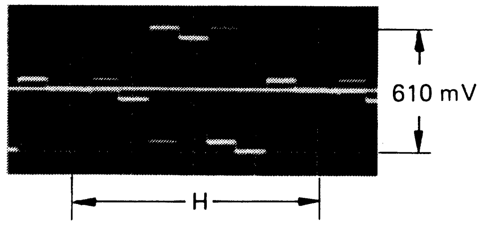
TP402
B-Y VI

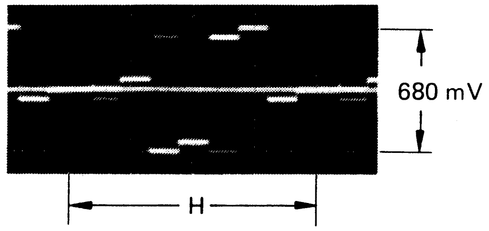
TP403
B-Y VI

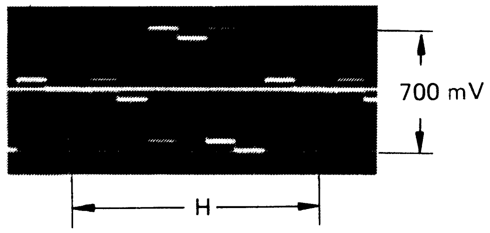
TP404
B-Y VI

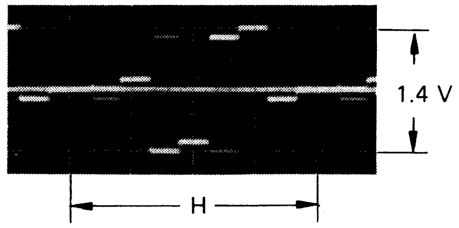
TP405
B-Y VI

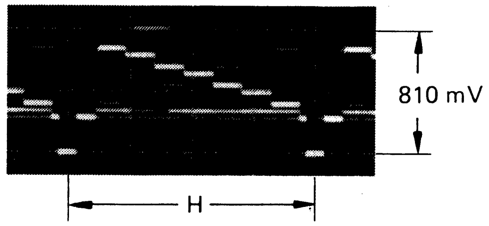
TP1
SAM
PULS

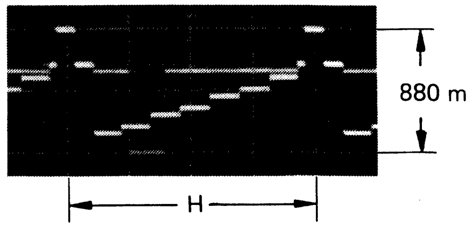

TP202
R-Y VIDEO

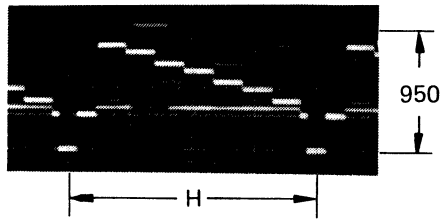

TP203
R-Y VIDEO

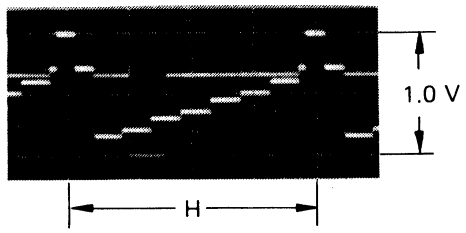

TP204
R-Y VIDEO

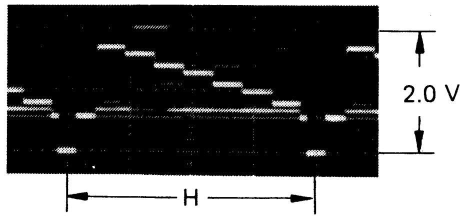

TP205
R-Y VIDEO

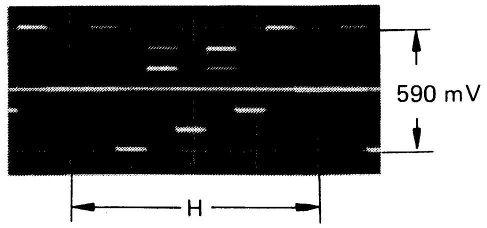

TP301
Y VIDEO

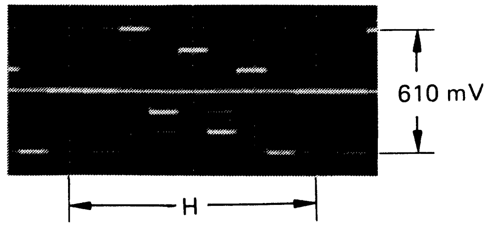

TP302
Y VIDEO

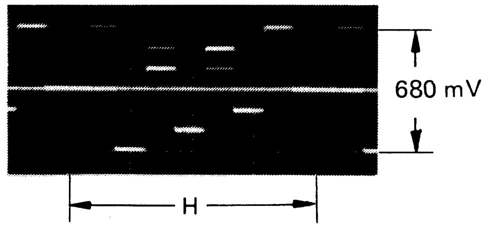

TP303
Y VIDEO

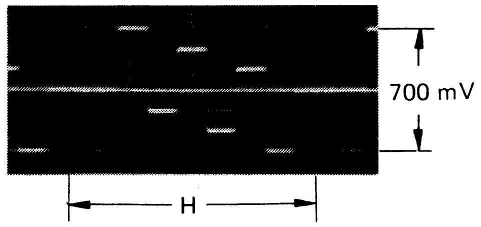

TP304
Y VIDEO

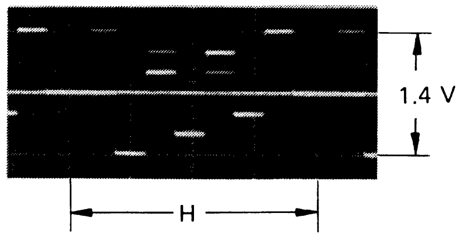

TP305
Y VIDEO

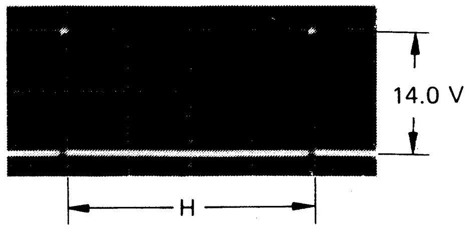

TP401
B-Y VIDEO

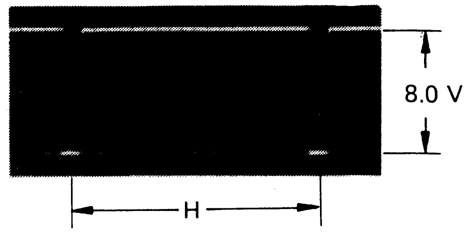

TP402
B-Y VIDEO

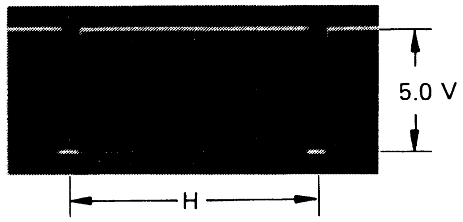

TP403
B-Y VIDEO


TP404
B-Y VIDEO

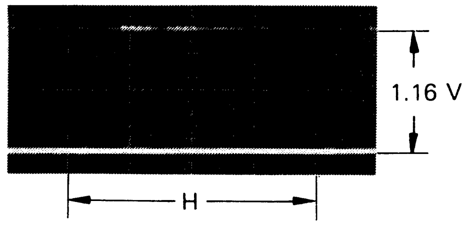

TP405
B-Y VIDEO


TP1
SAMPLE
PULSE

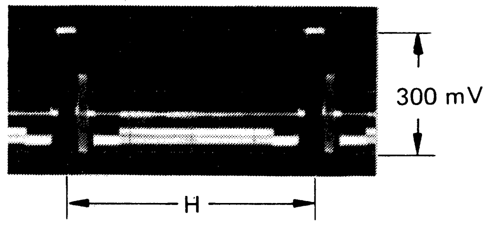

TP2
SYNC


TP4
SYNC

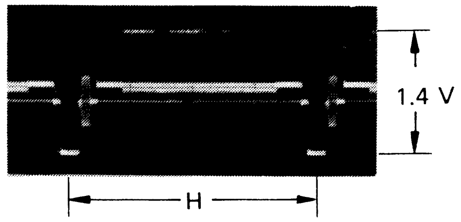
DISP SW→CHG


CN10-1pin
CHARACTOR
VIDEO

DISP SW→CHG
CAM mode, Lens: Close


CN10-2pin
CHARACTOR
BACK

DISP SW→CHG
CAM mode, Lens: Close


TP5
MONITOR
OUT

## AT-50(1/2)回路図

**注意:**

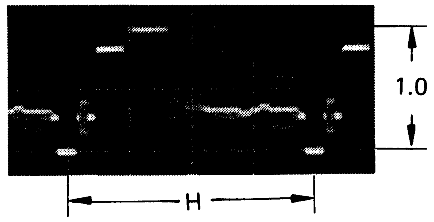
1. DC電圧はデジタル電圧計(入力インピーダンス10 MΩ)による値。
2. 波形写真及びDC電圧は下記条件で測定。
   - ・CCU-M7をCCZケーブル(25 m; CCZ-A25)でカメラDXC-M7と接続する。
   - ・CCU-M7のスイッチ・セッティング
     CABLE COMPスイッチ: 25 m
     RETURN VIDEO 75Ω スイッチ: ON
     GENLOCK 75Ω スイッチ: ON
   - ・CCU-M7リアパネルのRETURN VIDEO IN端子及びGENLOCK IN端子にカラーバー信号(1 Vp-p 75Ω終端時)を入力する。

## AT-50 (1/2)

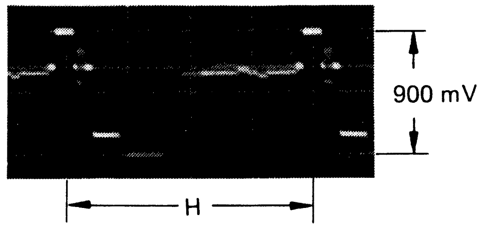
NOTE:

1. All voltage are dc, measured with a digital voltmeter. (input impedance: 10MΩ)
2. All waveforms are taken and DC voltage is measured in condition below.
   - . Be sure that CCU-M7 is connected to DXC-M7 by the camera cable (25m: CCZ-A25).
   - . Set the switches on CCU.
     CABLE COMP selector : 25m
     RETURN VIDEO 75Ω switch: ON
     GENLOCK 75Ω switch : ON
   - . Connectors "GENLOCK IN" and "RETURN VIDEO IN" are supplied with the color bar signal (1Vp-p).

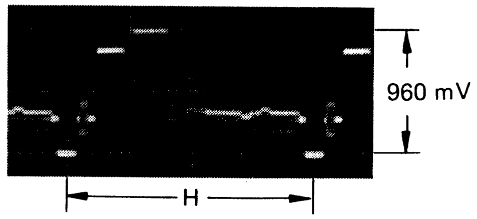
TP101
RETURN
VIDEO



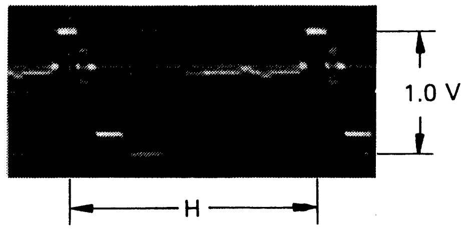
TP102
RETURN
VIDEO



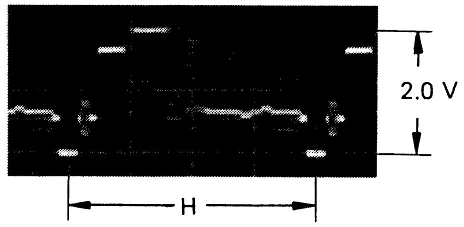
TP103
RETURN
VIDEO



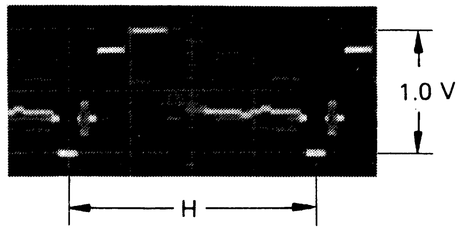
TP104
RETURN
VIDEO



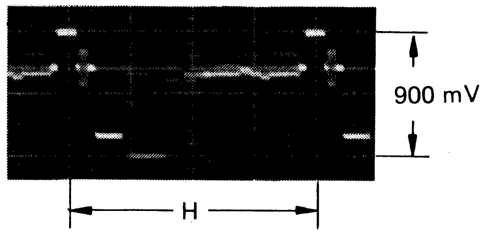
TP105
RETURN
VIDEO



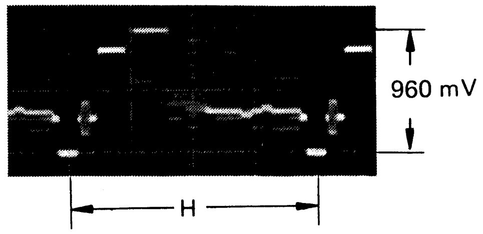
TP201
GENLOCK
VIDEO



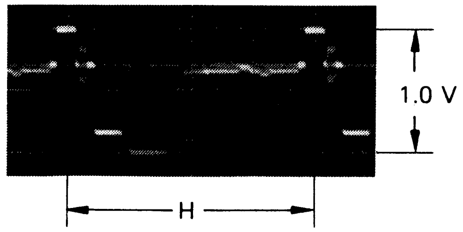
TP202
GENLOCK
VIDEO



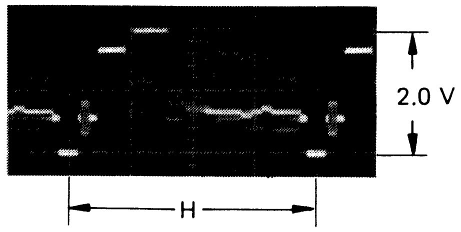
TP203
GENLOCK
VIDEO



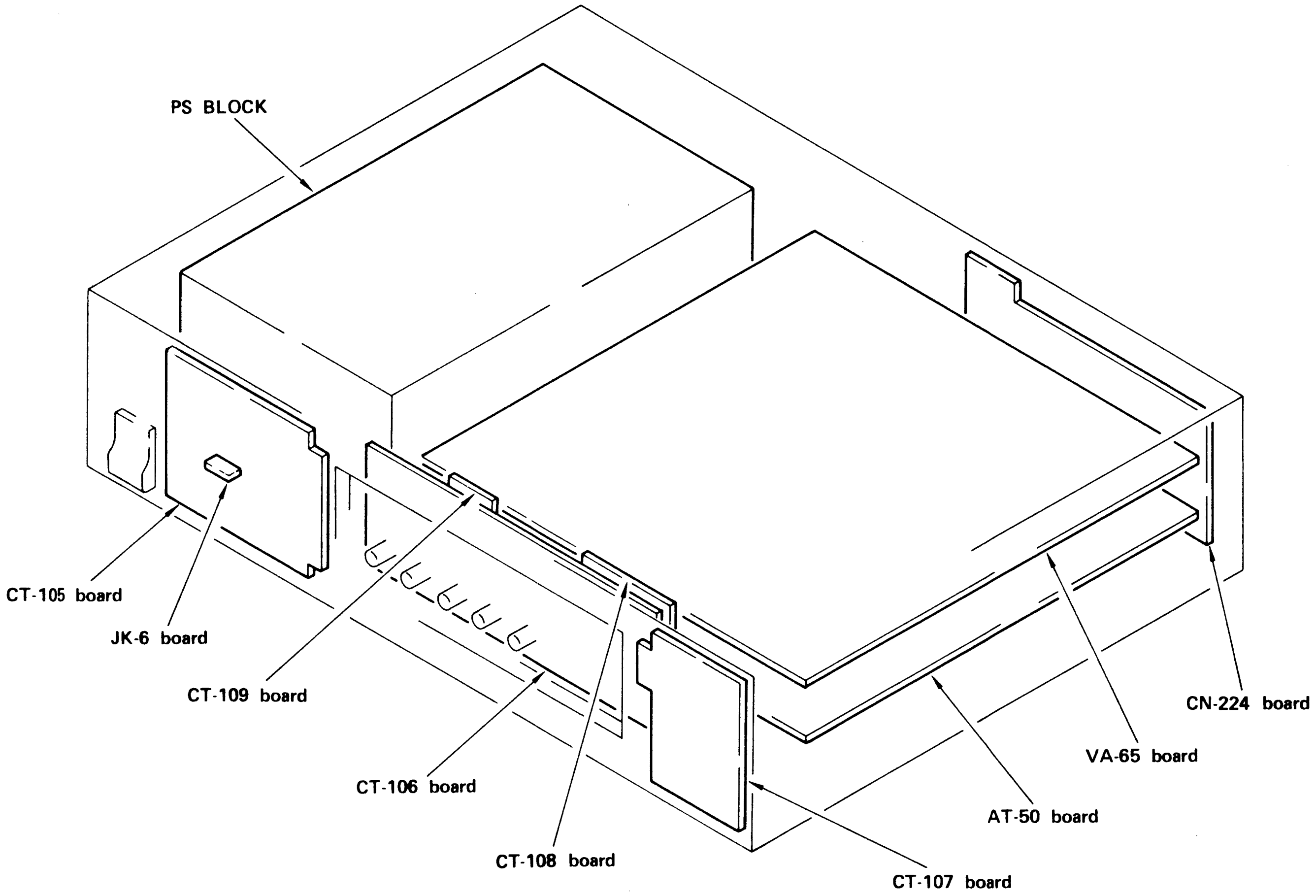
TP204
GENLOCK
VIDEO



TP205
GENLOCK
VIDEO



# SECTION C
# SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS


PS BLOCK
CT-105 board
JK-6 board
CT-109 board
CT-106 board
CT-108 board
CT-107 board
AT-50 board
VA-65 board
CN-224 board

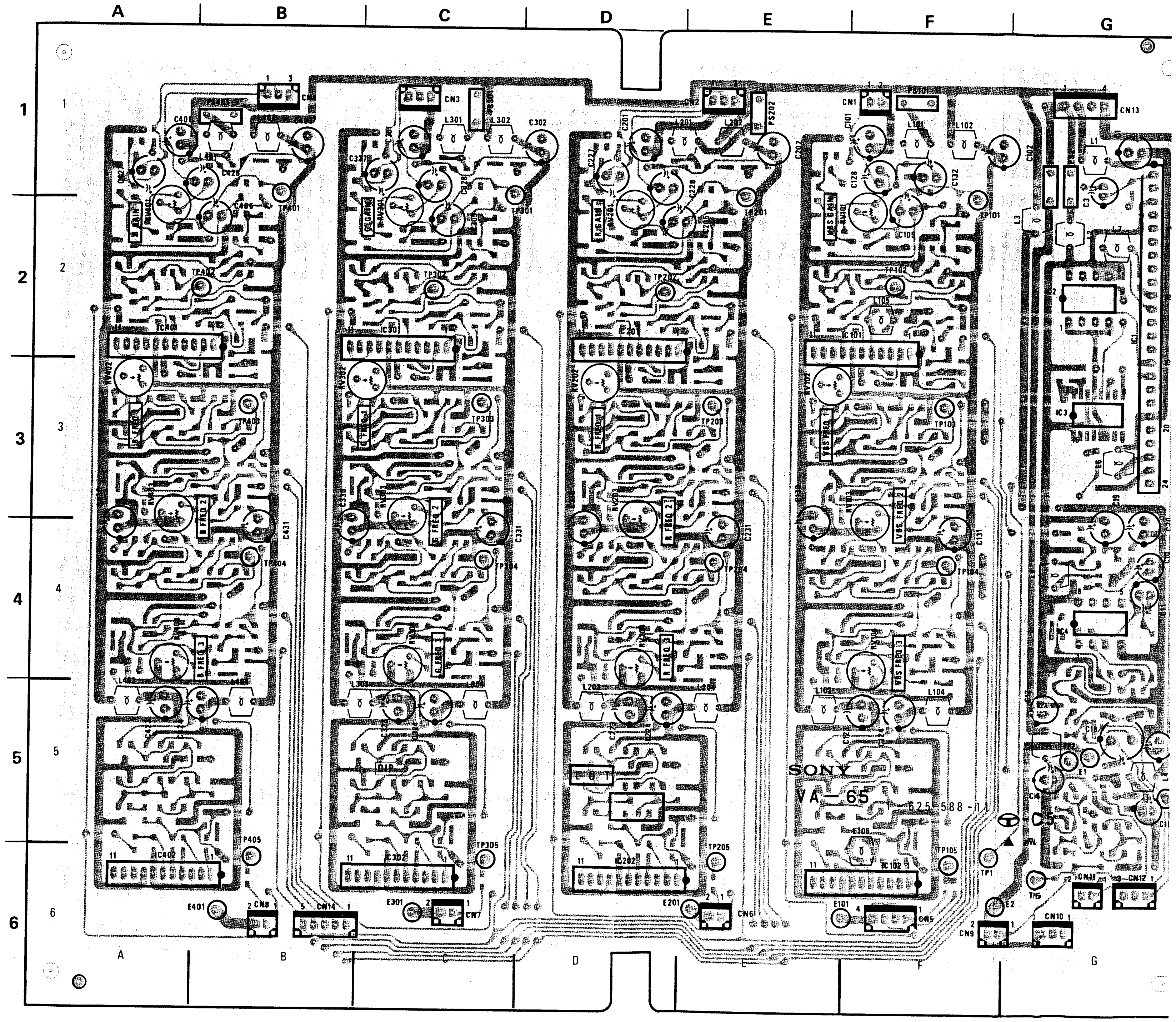
## VA-65 BOARD (VIDEO AMPLIFIER)

Ser.No.10001-10580 (UC)
30001-30370 (J)
40001-40160 (EK)

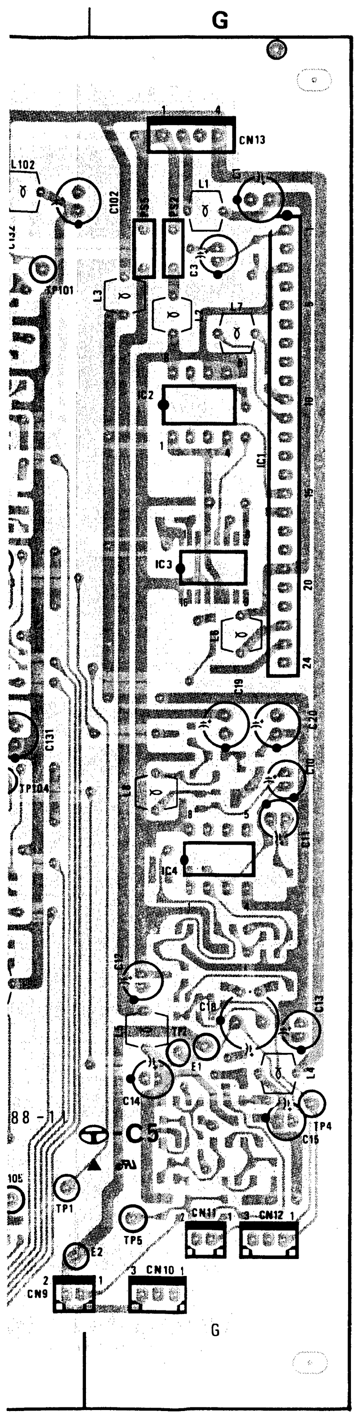
VA-65 (1-625-588-11)

| | |
|---|---|
| CN1 | F - 1 C |
| | F - 1 S |
| CN2 | E - 1 C |
| | E - 1 S |
| CN3 | C - 1 C |
| | C - 1 S |
| CN4 | B - 1 C |
| | B - 1 S |
| CN5 | F - 6 C |
| | F - 6 S |
| CN6 | E - 6 C |
| | E - 6 S |
| CN7 | C - 6 C |
| | C - 6 S |
| CN8 | B - 6 C |
| | B - 6 S |
| CN9 | F - 6 C |
| | F - 6 S |
| CN10 | G - 6 C |
| | G - 6 S |
| CN11 | G - 6 C |
| | G - 6 S |
| CN12 | G - 6 C |
| | G - 6 S |
| CN13 | G - 1 C |
| | G - 1 S |
| CN14 | B - 6 C |
| | B - 6 S |
| D4 | G - 4 S |
| D5 | G - 4 S |
| D6 | G - 4 S |
| D102 | E - 1 S |
| D103 | E - 1 S |
| D201 | D - 1 S |
| D202 | D - 1 S |
| D203 | E - 1 S |
| D301 | C - 1 S |
| D302 | C - 1 S |
| D303 | C - 1 S |
| D401 | B - 1 S |
| D402 | A - 1 S |
| D403 | B - 1 S |
| E1 | G - 5 C |
| E2 | F - 6 C |
| E101 | F - 6 C |
| E201 | D - 6 C |
| E301 | C - 6 C |
| E401 | B - 6 C |
| IC1 | G - 2 C |
| | G - 2 S |
| IC2 | G - 2 C |
| | G - 2 S |
| IC3 | G - 3 C |
| | G - 3 S |
| IC4 | G - 4 C |
| | G - 4 S |
| IC101 | F - 2 C |
| | F - 2 S |
| IC102 | F - 6 C |
| | F - 6 S |
| IC201 | D - 2 C |
| | D - 2 S |
| IC202 | D - 6 C |
| | D - 6 S |
| IC301 | C - 2 C |
| | C - 2 S |
| IC302 | C - 6 C |
| | C - 6 S |
| IC401 | A - 2 C |
| | A - 2 S |
| IC402 | A - 6 C |
| | A - 6 S |
| PS2 | G - 1 C |
| PS5 | G - 1 C |
| PS101 | F - 1 C |
| PS202 | E - 1 C |
| PS301 | C - 1 C |
| PS401 | B - 1 C |
| Q3 | G - 4 S |
| Q4 | G - 4 S |
| Q5 | G - 4 S |
| Q6 | G - 4 S |
| Q7 | G - 4 S |
| Q8 | G - 5 S |
| Q10 | G - 5 S |
| Q11 | G - 5 S |
| Q12 | G - 5 S |
| Q13 | G - 5 S |
| Q14 | G - 5 S |
| Q15 | G - 5 S |
| Q16 | G - 6 S |
| Q101 | E - 1 S |
| Q102 | F - 2 S |
| Q103 | E - 2 S |
| Q104 | F - 2 S |
| Q105 | F - 2 S |
| Q106 | E - 2 S |
| Q107 | F - 2 S |
| Q108 | F - 3 S |
| Q109 | E - 2 S |
| Q110 | F - 2 S |
| Q111 | F - 2 S |
| Q112 | F - 3 S |
| Q113 | F - 3 S |
| Q114 | E - 3 S |
| Q115 | F - 3 S |
| Q116 | F - 3 S |
| Q117 | F - 3 S |
| Q118 | F - 3 S |
| Q119 | F - 3 S |
| Q120 | F - 3 S |
| Q121 | F - 4 S |
| Q122 | F - 4 S |
| Q123 | F - 4 S |
| Q124 | F - 4 S |
| Q125 | F - 4 S |
| Q126 | F - 4 S |
| Q127 | F - 4 S |
| Q128 | F - 4 S |
| Q129 | F - 4 S |
| Q130 | E - 5 S |
| Q131 | F - 4 S |
| Q132 | E - 5 S |
| Q133 | F - 4 S |
| Q134 | F - 4 S |
| Q135 | E - 5 S |
| Q136 | F - 4 S |
| Q138 | F - 5 S |
| Q201 | D - 1 S |
| Q202 | D - 2 S |
| Q203 | D - 2 S |
| Q204 | E - 2 S |
| Q205 | E - 2 S |
| Q206 | D - 2 S |
| Q207 | D - 2 S |
| Q208 | D - 2 S |
| Q209 | D - 2 S |
| Q210 | E - 2 S |
| Q211 | E - 2 S |
| Q212 | D - 3 S |
| Q213 | D - 3 S |
| Q214 | D - 3 S |
| Q215 | D - 3 S |
| Q216 | D - 3 S |
| Q217 | E - 3 S |
| Q218 | E - 3 S |
| Q219 | D - 3 S |
| Q220 | E - 3 S |
| Q221 | D - 4 S |
| Q222 | D - 4 S |
| Q223 | D - 4 S |
| Q224 | D - 4 S |
| Q225 | D - 4 S |
| Q226 | E - 4 S |
| Q227 | E - 4 S |
| Q228 | D - 4 S |
| Q229 | E - 4 S |
| Q230 | D - 5 S |
| Q231 | D - 5 S |
| Q232 | D - 5 S |
| Q233 | D - 5 S |
| Q234 | D - 5 S |
| Q235 | D - 5 S |
| Q236 | D - 5 S |
| Q302 | C - 2 S |
| Q303 | B - 2 S |
| Q304 | C - 2 S |
| Q305 | C - 2 S |
| Q306 | B - 2 S |
| Q307 | C - 2 S |
| Q308 | C - 2 S |
| Q309 | B - 2 S |
| Q310 | C - 2 S |
| Q311 | C - 2 S |
| Q312 | C - 3 S |
| Q313 | C - 3 S |
| Q314 | B - 3 S |
| Q315 | C - 3 S |
| Q316 | C - 3 S |
| Q317 | C - 3 S |
| Q318 | C - 3 S |
| Q319 | C - 3 S |
| Q320 | C - 3 S |
| Q321 | C - 4 S |
| Q322 | C - 4 S |
| Q323 | B - 4 S |
| Q324 | C - 4 S |
| Q325 | C - 4 S |
| Q326 | C - 4 S |
| Q327 | C - 4 S |
| Q328 | C - 4 S |
| Q329 | C - 4 S |
| Q330 | C - 5 S |
| Q331 | C - 5 S |
| Q332 | C - 5 S |
| Q333 | C - 5 S |
| Q334 | C - 5 S |
| Q335 | C - 5 S |
| Q336 | C - 5 S |
| Q401 | A - 1 C |
| Q402 | A - 2 S |
| Q403 | A - 2 S |
| Q404 | B - 2 S |
| Q405 | B - 2 S |
| Q406 | A - 2 S |
| Q407 | A - 2 S |
| Q408 | A - 2 S |
| Q409 | A - 2 S |
| Q410 | B - 2 S |
| Q411 | B - 2 S |
| Q412 | A - 3 S |
| Q414 | A - 3 S |
| Q415 | A - 3 S |
| Q416 | A - 3 S |
| Q417 | B - 3 S |
| Q418 | B - 3 S |
| Q419 | A - 3 S |
| Q420 | B - 3 S |
| Q421 | A - 4 S |
| Q422 | A - 4 S |
| Q423 | A - 4 S |
| Q424 | A - 4 S |
| Q425 | A - 4 S |
| Q426 | B - 4 S |
| Q427 | B - 4 S |
| Q428 | A - 4 S |
| Q429 | B - 4 S |
| Q430 | A - 5 S |
| Q431 | A - 5 S |
| Q432 | A - 5 S |
| Q433 | A - 5 S |
| Q434 | B - 5 S |
| Q435 | A - 5 S |
| Q436 | A - 5 S |
| RV101 | F - 2 C |
| RV102 | E - 3 C |
| RV103 | F - 3 C |
| RV104 | F - 4 C |
| RV201 | D - 2 C |
| RV202 | D - 3 C |
| RV203 | D - 3 C |
| RV204 | D - 4 C |
| RV301 | C - 2 C |
| RV302 | C - 3 C |
| RV303 | C - 3 C |
| RV304 | C - 4 C |
| RV401 | A - 2 C |
| RV402 | A - 3 C |
| RV403 | A - 3 C |
| RV404 | A - 4 C |
| TP1 | F - 5 C |
| TP2 | G - 5 C |
| TP4 | G - 5 C |
| TP5 | G - 6 C |
| TP101 | F - 1 C |
| TP102 | F - 2 C |
| TP103 | F - 3 C |
| TP104 | F - 4 C |
| TP105 | F - 6 C |
| TP201 | E - 1 C |
| TP202 | D - 2 C |
| TP203 | E - 3 C |
| TP204 | E - 4 C |
| TP205 | E - 6 C |
| TP301 | C - 1 C |
| TP302 | C - 2 C |
| TP303 | C - 3 C |
| TP304 | C - 4 C |
| TP305 | C - 6 C |
| TP401 | B - 1 C |
| TP402 | B - 2 C |
| TP403 | B - 3 C |
| TP404 | B - 4 C |
| TP405 | B - 6 C |

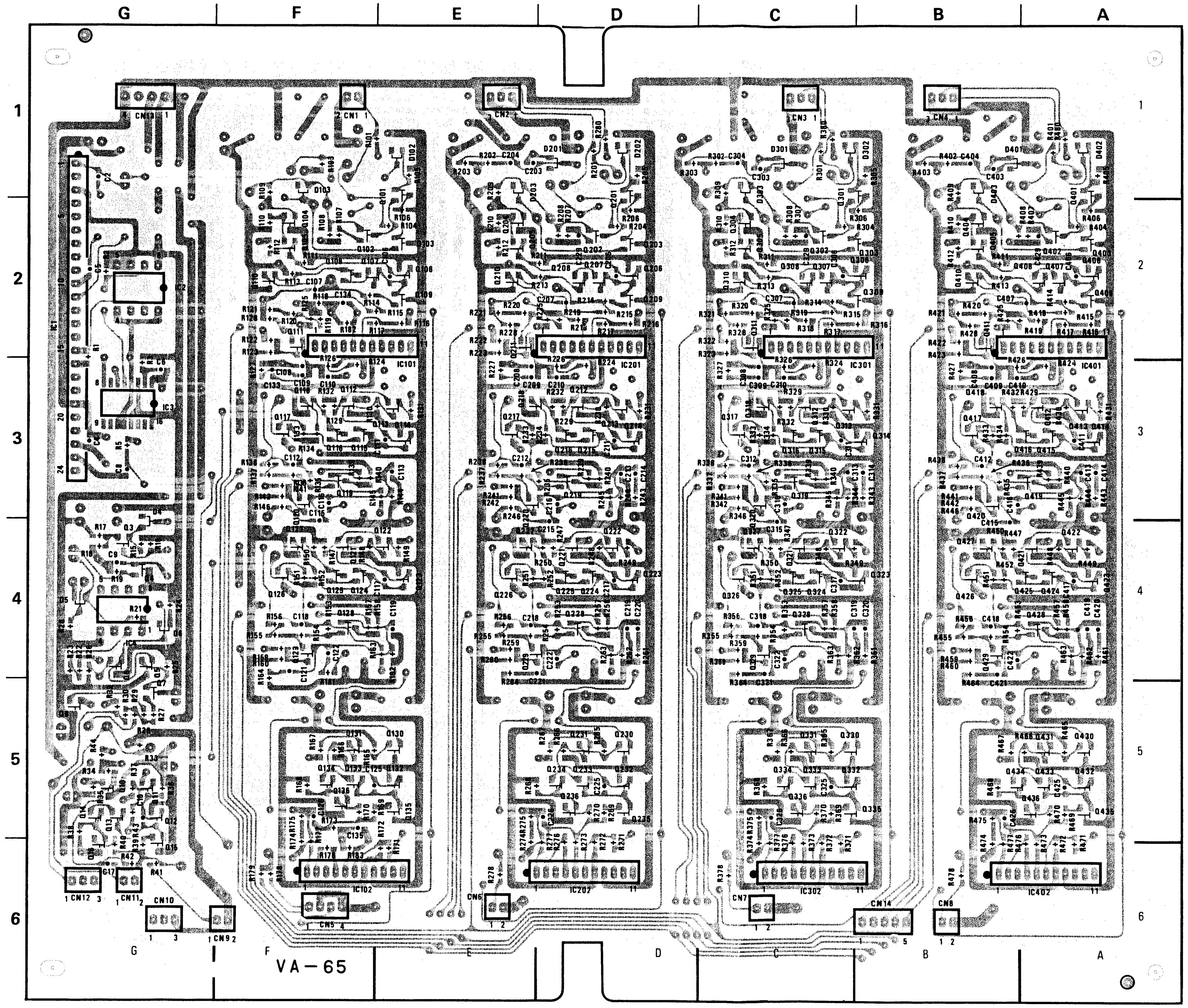
*-* C; COMPONENT SIDE
*-* S; SOLDERING SIDE



VA-65 – COMPONENT SID
1-625-588-11
CCU-M7 (J, UC)
CCU-M7P (EK)


G
CN13
L102
C102
TP101
L3
L1
L2
C3
IC2
IC1
IC3
IC4
TP104
C131
C5
TP1
TP5
TP4
C14
C16
CN11
CN12
CN9
CN10
E1
E2
G

**VA-65** – COMPONENT SIDE –
1-625-588-11
CCU-M7 (J, UC)
CCU-M7P (EK)


G
F
E
D
C
B
A
1
2
3
4
5
6
CN13
CN1
CN2
CN3
CN4
IC101
IC201
IC301
IC401
IC102
IC202
IC302
IC402
CN12
CN11
CN10
CN9
CN5
CN6
CN7
CN14
CN8
VA-65

**VA-65** – SOLDER SIDE –
1-625-588-11
CCU-M7 (J, UC)
CCU-M7P (EK)

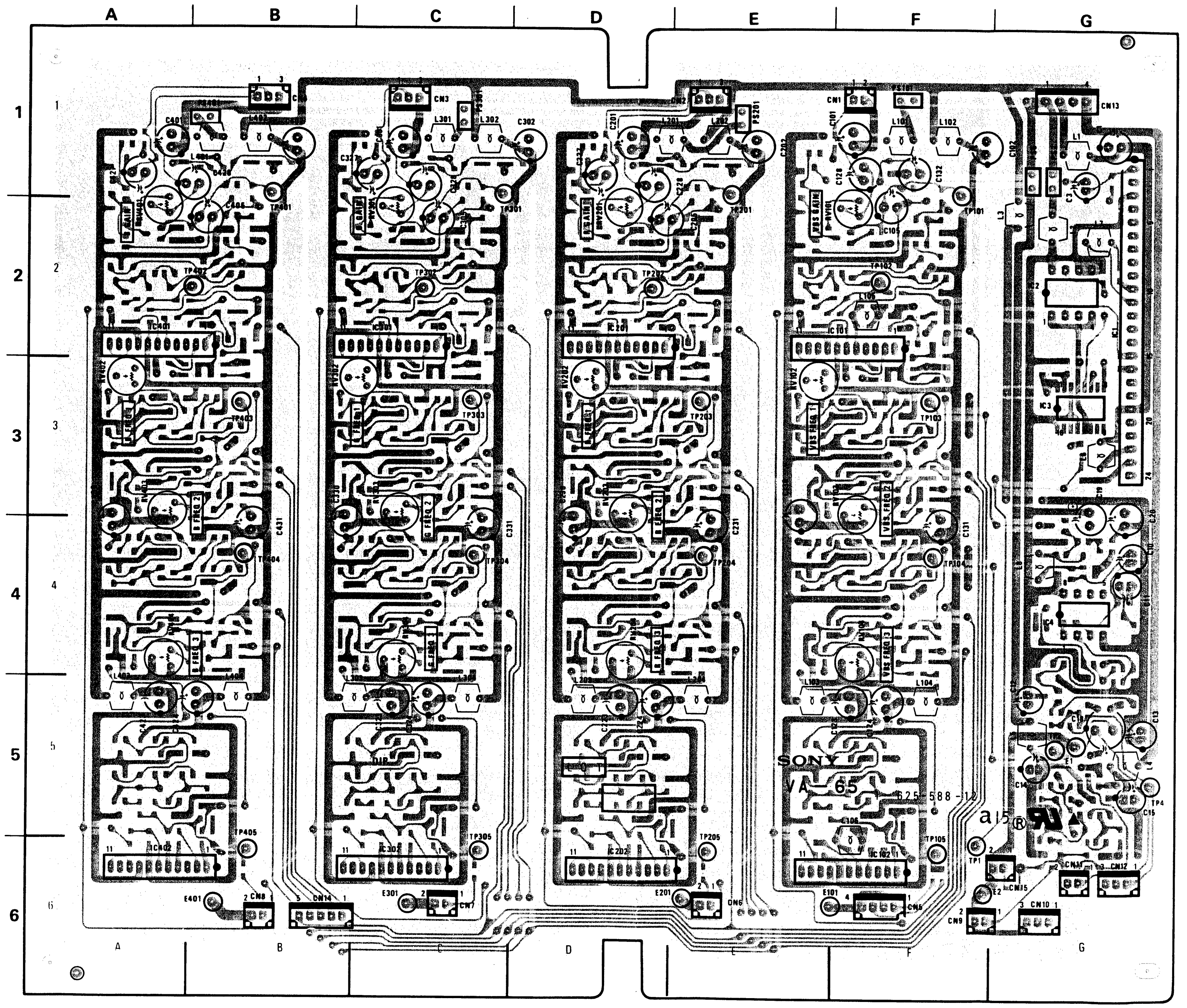
## VA-65 BOARD (VIDEO AMPLIFIER)

Ser.No.10581- (EK)
30371- (J)
40161- (EK)

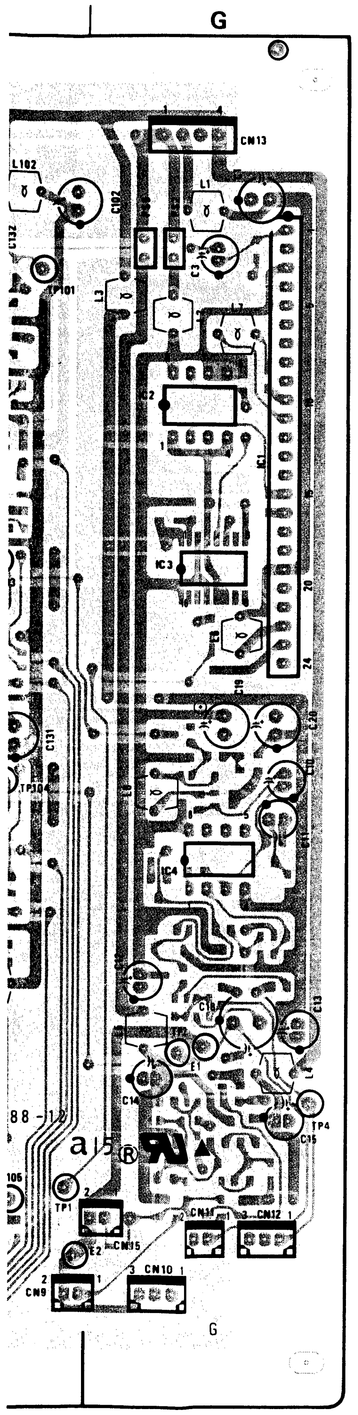
VA-65 (1-625-588-12)

| | |
|---|---|
| CN1 | F - 1 C |
| | F - 1 S |
| CN2 | E - 1 C |
| | E - 1 S |
| CN3 | C - 1 C |
| | C - 1 S |
| CN4 | B - 1 C |
| | B - 1 S |
| CN5 | F - 6 C |
| | F - 6 S |
| CN6 | E - 6 C |
| | E - 6 S |
| CN7 | C - 6 C |
| | C - 6 S |
| CN8 | B - 6 C |
| | B - 6 S |
| CN9 | F - 6 C |
| | F - 6 S |
| CN10 | G - 6 C |
| | G - 6 S |
| CN11 | G - 6 C |
| | G - 6 S |
| CN12 | G - 6 C |
| | G - 6 S |
| CN13 | G - 1 C |
| | G - 1 S |
| CN14 | B - 6 C |
| | B - 6 S |
| CN15 | G - 6 C |
| | G - 1 S |
| D4 | G - 4 S |
| D5 | G - 4 S |
| D6 | G - 4 S |
| D102 | E - 1 S |
| D103 | F - 1 S |
| D201 | D - 1 S |
| D202 | D - 1 S |
| D203 | E - 1 S |
| D301 | C - 1 S |
| D302 | C - 1 S |
| D303 | C - 1 S |
| D401 | B - 1 S |
| D402 | A - 1 S |
| D403 | B - 1 S |
| E1 | G - 5 C |
| E2 | F - 6 C |
| E101 | F - 6 C |
| E201 | E - 6 C |
| E301 | C - 6 C |
| E401 | B - 6 C |
| IC1 | G - 2 C |
| | G - 2 S |
| IC2 | G - 2 C |
| | G - 2 S |
| IC3 | G - 3 C |
| | G - 3 S |
| IC4 | G - 4 C |
| | G - 4 S |
| IC101 | F - 2 C |
| | F - 2 S |
| IC102 | F - 6 C |
| | F - 6 S |
| IC201 | D - 2 C |
| | D - 2 S |
| IC202 | D - 6 C |
| | D - 6 S |
| IC301 | C - 2 C |
| | C - 2 S |
| IC302 | C - 6 C |
| | C - 6 S |
| IC401 | A - 2 C |
| | A - 2 S |
| IC402 | A - 6 C |
| | A - 6 S |
| PS2 | G - 1 C |
| PS5 | G - 1 C |
| PS101 | F - 1 C |
| PS201 | E - 1 C |
| PS301 | C - 1 C |
| PS401 | B - 1 C |
| Q3 | G - 4 S |
| Q4 | G - 4 S |
| Q5 | G - 4 S |
| Q6 | G - 4 S |
| Q7 | G - 5 S |
| Q8 | G - 5 S |
| Q10 | G - 5 S |
| Q11 | G - 5 S |
| Q12 | G - 5 S |
| Q13 | G - 5 S |
| Q14 | G - 5 S |
| Q15 | G - 6 S |
| Q16 | G - 6 S |
| Q101 | E - 1 S |
| Q102 | F - 2 S |
| Q103 | E - 2 S |
| Q104 | F - 2 S |
| Q105 | F - 2 S |
| Q106 | E - 2 S |
| Q107 | F - 2 S |
| Q108 | F - 2 S |
| Q109 | E - 2 S |
| Q110 | F - 2 S |
| Q111 | F - 2 S |
| Q112 | F - 3 S |
| Q113 | E - 3 S |
| Q114 | E - 3 S |
| Q115 | F - 3 S |
| Q116 | F - 3 S |
| Q117 | F - 3 S |
| Q118 | F - 3 S |
| Q119 | F - 3 S |
| Q120 | F - 3 S |
| Q121 | F - 4 S |
| Q122 | E - 4 S |
| Q123 | E - 4 S |
| Q124 | F - 4 S |
| Q125 | F - 4 S |
| Q126 | F - 4 S |
| Q127 | F - 4 S |
| Q128 | F - 4 S |
| Q129 | F - 4 S |
| Q130 | E - 5 S |
| Q131 | F - 5 S |
| Q132 | E - 5 S |
| Q133 | F - 5 S |
| Q134 | F - 5 S |
| Q135 | E - 5 S |
| Q136 | F - 5 S |
| Q138 | F - 5 S |
| Q201 | D - 1 S |
| Q202 | D - 2 S |
| Q203 | D - 2 S |
| Q204 | E - 2 S |
| Q205 | E - 2 S |
| Q206 | D - 2 S |
| Q207 | D - 2 S |
| Q208 | D - 2 S |
| Q209 | D - 2 S |
| Q210 | E - 2 S |
| Q211 | E - 2 S |
| Q212 | D - 3 S |
| Q213 | D - 3 S |
| Q214 | D - 3 S |
| Q215 | D - 3 S |
| Q216 | D - 3 S |
| Q217 | E - 3 S |
| Q218 | E - 3 S |
| Q219 | D - 3 S |
| Q220 | E - 3 S |
| Q221 | D - 4 S |
| Q222 | D - 4 S |
| Q223 | D - 4 S |
| Q224 | D - 4 S |
| Q225 | D - 4 S |
| Q226 | E - 4 S |
| Q227 | E - 4 S |
| Q228 | D - 4 S |
| Q229 | E - 4 S |
| Q230 | D - 5 S |
| Q231 | D - 5 S |
| Q232 | D - 5 S |
| Q233 | D - 5 S |
| Q234 | D - 5 S |
| Q235 | D - 5 S |
| Q236 | D - 5 S |
| Q302 | C - 2 S |
| Q303 | B - 2 S |
| Q304 | C - 2 S |
| Q305 | C - 2 S |
| Q306 | B - 2 S |
| Q307 | C - 2 S |
| Q308 | C - 2 S |
| Q309 | B - 2 S |
| Q310 | C - 2 S |
| Q311 | C - 2 S |
| Q312 | C - 3 S |
| Q313 | C - 3 S |
| Q314 | B - 3 S |
| Q315 | C - 3 S |
| Q316 | C - 3 S |
| Q317 | C - 3 S |
| Q318 | C - 3 S |
| Q319 | C - 3 S |
| Q320 | C - 3 S |
| Q321 | C - 4 S |
| Q322 | C - 4 S |
| Q323 | B - 4 S |
| Q324 | C - 4 S |
| Q325 | C - 4 S |
| Q326 | C - 4 S |
| Q327 | C - 4 S |
| Q328 | C - 4 S |
| Q329 | C - 4 S |
| Q330 | C - 5 S |
| Q331 | C - 5 S |
| Q332 | C - 5 S |
| Q333 | C - 5 S |
| Q334 | C - 5 S |
| Q335 | C - 5 S |
| Q336 | C - 5 S |
| Q401 | A - 1 S |
| Q402 | A - 2 S |
| Q403 | A - 2 S |
| Q404 | B - 2 S |
| Q405 | B - 2 S |
| Q406 | A - 2 S |
| Q407 | A - 2 S |
| Q408 | A - 2 S |
| Q409 | A - 2 S |
| Q410 | B - 2 S |
| Q411 | B - 2 S |
| Q412 | A - 3 S |
| Q413 | A - 3 S |
| Q414 | A - 3 S |
| Q415 | A - 3 S |
| Q416 | A - 3 S |
| Q417 | B - 3 S |
| Q418 | B - 3 S |
| Q419 | A - 3 S |
| Q420 | B - 3 S |
| Q421 | A - 4 S |
| Q422 | A - 4 S |
| Q423 | A - 4 S |
| Q424 | A - 4 S |
| Q425 | A - 4 S |
| Q426 | B - 4 S |
| Q427 | B - 4 S |
| Q428 | A - 4 S |
| Q429 | B - 4 S |
| Q430 | A - 5 S |
| Q431 | A - 5 S |
| Q432 | A - 5 S |
| Q433 | A - 5 S |
| Q434 | B - 5 S |
| Q435 | A - 5 S |
| Q436 | A - 5 S |
| RV101 | F - 2 C |
| RV102 | E - 3 C |
| RV103 | F - 3 C |
| RV104 | F - 4 C |
| RV201 | D - 2 C |
| RV202 | D - 3 C |
| RV203 | D - 3 C |
| RV204 | D - 4 C |
| RV301 | C - 2 C |
| RV302 | C - 3 C |
| RV303 | C - 3 C |
| RV304 | C - 4 C |
| RV401 | A - 2 C |
| RV402 | A - 3 C |
| RV403 | A - 3 C |
| RV404 | A - 4 C |
| TP1 | F - 6 C |
| TP2 | G - 5 C |
| TP4 | G - 5 C |
| TP101 | F - 1 C |
| TP102 | F - 2 C |
| TP103 | F - 3 C |
| TP104 | F - 4 C |
| TP105 | F - 6 C |
| TP201 | E - 1 C |
| TP202 | D - 2 C |
| TP203 | E - 3 C |
| TP204 | E - 4 C |
| TP205 | E - 6 C |
| TP301 | C - 1 C |
| TP302 | C - 2 C |
| TP303 | C - 3 C |
| TP304 | C - 4 C |
| TP305 | C - 6 C |
| TP401 | B - 1 C |
| TP402 | B - 2 C |
| TP403 | B - 3 C |
| TP404 | B - 4 C |
| TP405 | B - 6 C |

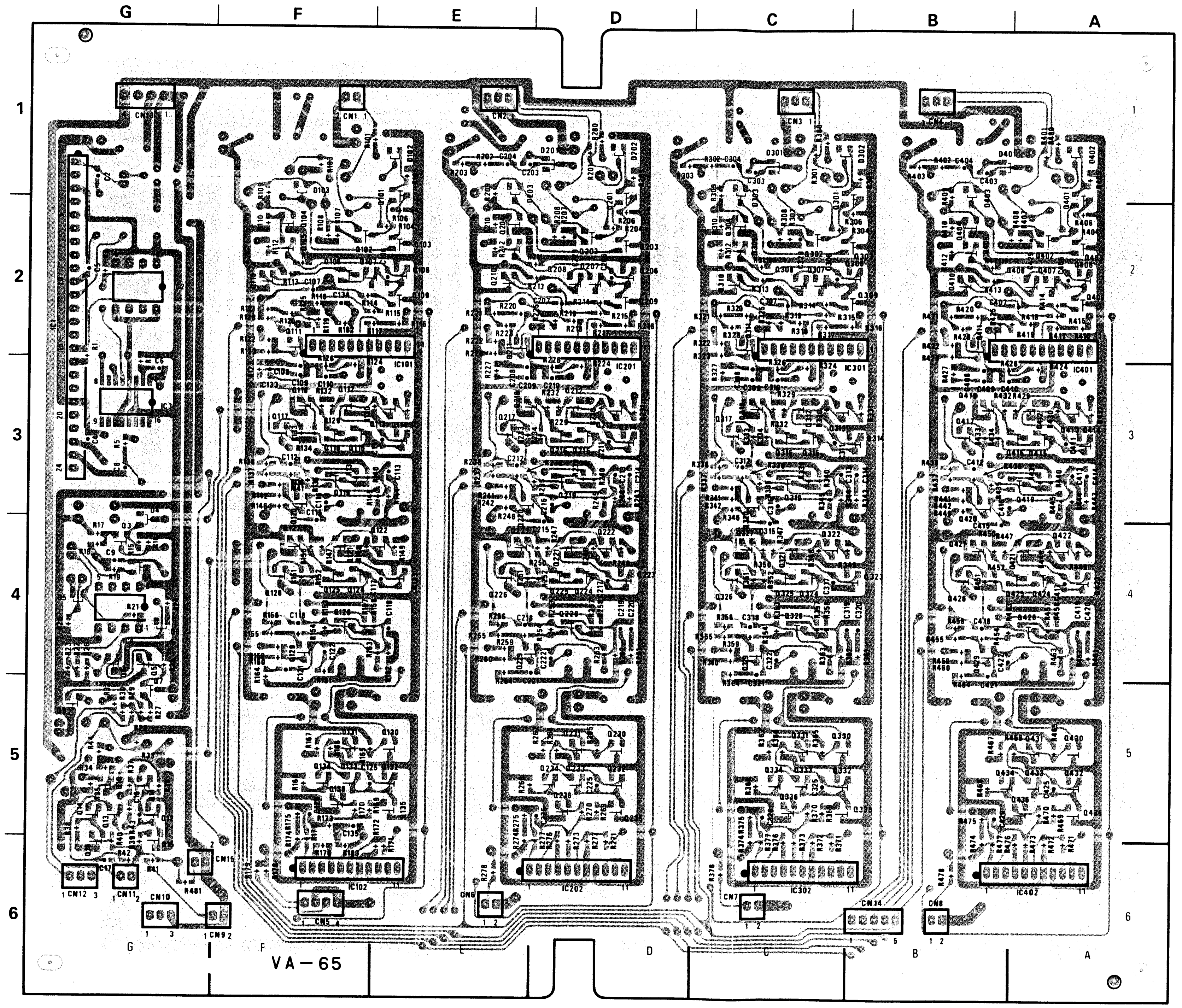
*-* C; COMPONENT SIDE
*-* S; SOLDERING SIDE



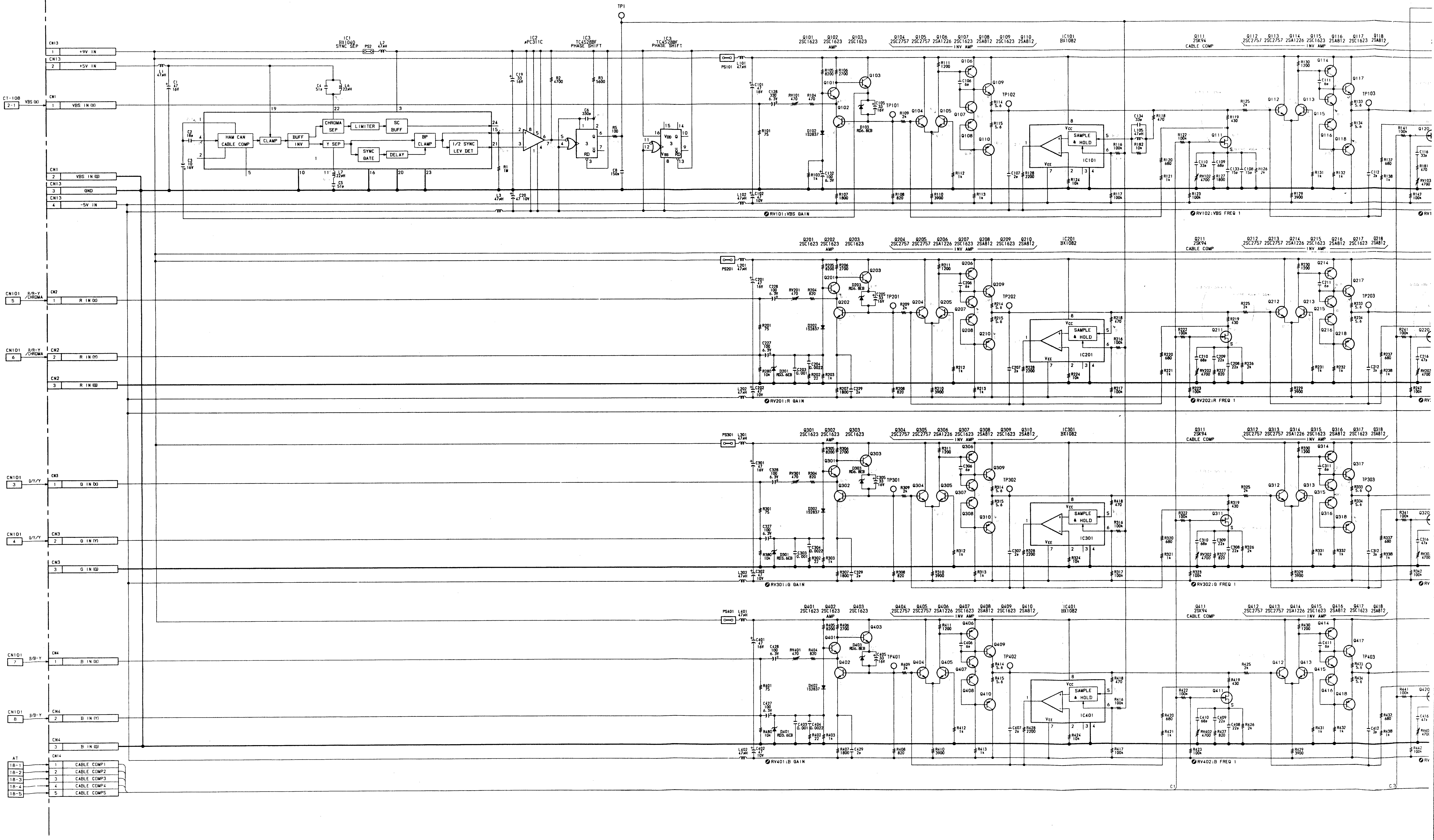
VA-65 – COMPONENT SIDE –
1-625-588-12
CCU-M7 (J, UC)
CCU-M7P (EK)

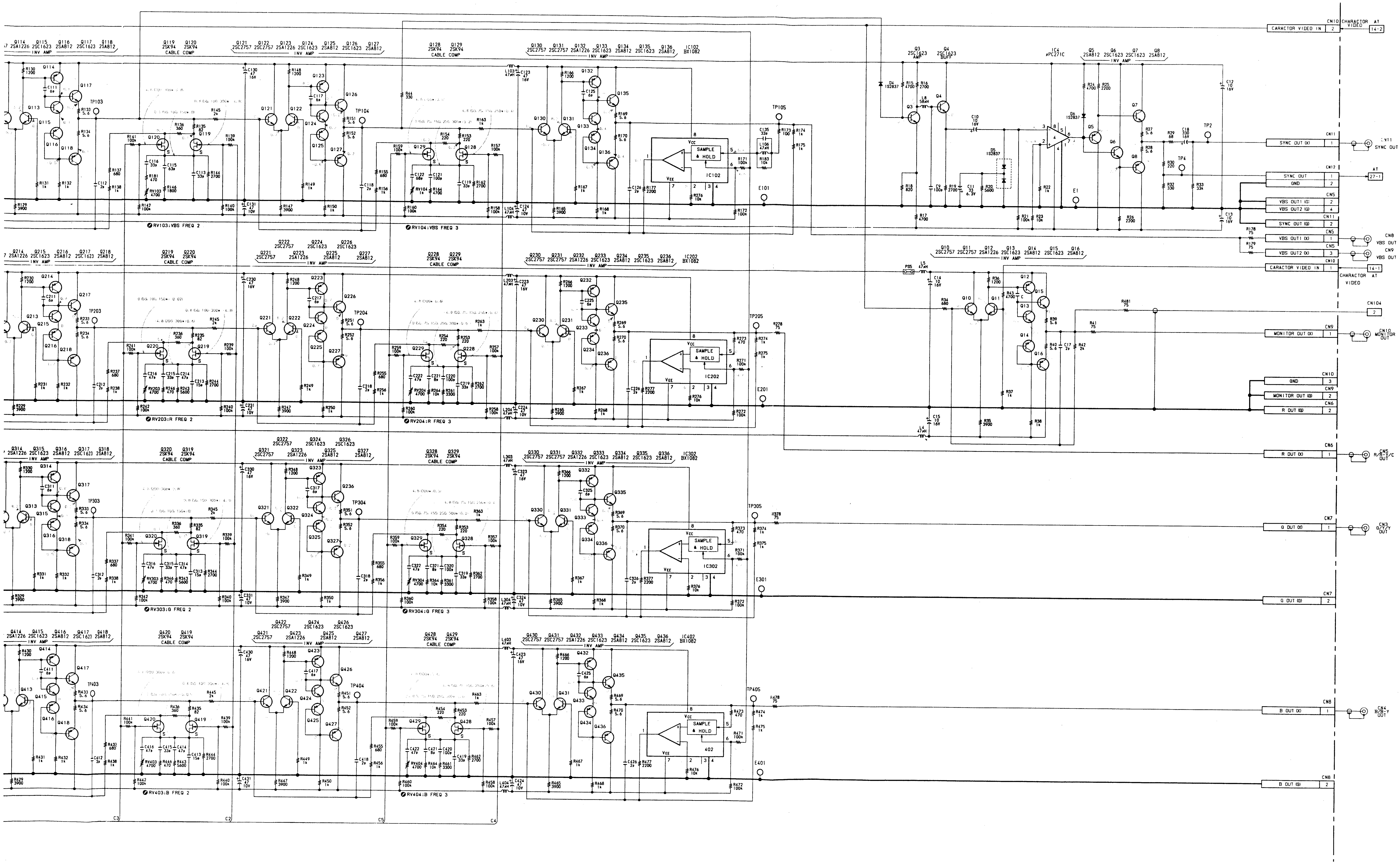

G
CM13
IC1
IC3
IC4
TP1
TP4
CM9
CM10
CM11
CM12
CM15
G

**VA-65** – COMPONENT SIDE –
1-625-588-12
CCU-M7 (J, UC)
CCU-M7P (EK)


G
F
E
D
C
B
A
1
2
3
4
5
6
CM1
CM2
CM3
CM4
CM5
CM6
CM7
CM8
CM9
CM10
CM11
CM12
CM14
CM15
IC101
IC102
IC201
IC202
IC301
IC302
IC401
IC402
VA – 65

**VA-65** – SOLDER SIDE –
1-625-588-12
CCU-M7 (J, UC)
CCU-M7P (EK)


CN13
+9V IN
+5V IN
CT-108
VBS IN (X)
VBS IN (Y)
GND
-5V IN
IC1 BX1040 SYNC SEP
HAM CAN CABLE COMP
CLAMP
BUFF INV
CHROMA SEP
Y SEP
LIMITER
SC BUFF
SYNC GATE
DELAY
BP CLAMP
1/2 SYNC LEV DET
IC2 μPC311C
IC3 TC4528BF PHASE SHIFT
TP1
PS101
PS201
PS301
PS401
Q101 2SC1623 Q102 2SC1623 Q103 2SC1623 AMP
Q104 2SC2757 Q105 2SC2757 Q106 2SA1226 Q107 2SC1623 Q108 2SA812 Q109 2SC1623 Q110 2SA812 INV AMP
IC101 BX1082
SAMPLE & HOLD
Q111 2SK94 CABLE COMP
Q112 2SC2757 Q113 2SC2757 Q114 2SA1226 Q115 2SC1623 Q116 2SA812 Q117 2SC1623 Q118 2SA812 INV AMP
TP101
TP102
TP103
RV101:VBS GAIN
RV102:VBS FREQ 1
CN101 R/R-Y /CHROMA
R IN (X)
R IN (Y)
R IN (G)
IC201 BX1082
TP201
TP202
TP203
RV201:R GAIN
RV202:R FREQ 1
CN101 G/Y/Y
G IN (X)
G IN (Y)
G IN (G)
IC301 BX1082
TP301
TP302
TP303
RV301:G GAIN
RV302:G FREQ 1
CN101 B/B-Y
B IN (X)
B IN (Y)
B IN (G)
IC401 BX1082
TP401
TP402
TP403
RV401:B GAIN
RV402:B FREQ 1
CN14
AT
CABLE COMP1
CABLE COMP2
CABLE COMP3
CABLE COMP4
CABLE COMP5


Q114 2SA1226 Q115 2SC1623 Q116 2SA812 Q117 2SC1623 Q118 2SA812
INV AMP
Q119 2SK94 Q120 2SK94
CABLE COMP
Q121 2SC2757 Q122 2SC2757 Q123 2SA1226 Q124 2SC1623 Q125 2SA812 Q126 2SC1623 Q127 2SA812
INV AMP
Q128 2SK94 Q129 2SK94
CABLE COMP
Q130 2SC2757 Q131 2SC2757 Q132 2SA1226 Q133 2SC1623 Q134 2SA812 Q135 2SC1623 Q136 2SA812 IC102 BX1082
INV AMP
SAMPLE & HOLD
IC102
TP103
TP104
TP105
E101
RV103:VBS FREQ 2
RV104:VBS FREQ 3
Q214 2SA1226 Q215 2SC1623 Q216 2SA812 Q217 2SC1623 Q218 2SA812
Q219 2SK94 Q220 2SK94
Q221 2SC2757 Q222 2SC2757 Q223 2SA1226 Q224 2SC1623 Q225 2SA812 Q226 2SC1623 Q227 2SA812
Q228 2SK94 Q229 2SK94
Q230 2SC2757 Q231 2SC2757 Q232 2SA1226 Q233 2SC1623 Q234 2SA812 Q235 2SC1623 Q236 2SA812 IC202 BX1082
IC202
TP203
TP204
TP205
E201
RV203:R FREQ 2
RV204:R FREQ 3
Q314 2SA1226 Q315 2SC1623 Q316 2SA812 Q317 2SC1623 Q318 2SA812
Q320 2SK94 Q319 2SK94
Q321 2SC2757 Q322 2SC2757 Q323 2SA1226 Q324 2SC1623 Q325 2SA812 Q326 2SC1623 Q327 2SA812
Q328 2SK94 Q329 2SK94
Q330 2SC2757 Q331 2SC2757 Q332 2SA1226 Q333 2SC1623 Q334 2SA812 Q335 2SC1623 Q336 2SA812 IC302 BX1082
IC302
TP303
TP304
TP305
E301
RV303:G FREQ 2
RV304:G FREQ 3
Q414 2SA1226 Q415 2SC1623 Q416 2SA812 Q417 2SC1623 Q418 2SA812
Q420 2SK94 Q419 2SK94
Q421 2SC2757 Q422 2SC2757 Q423 2SA1226 Q424 2SC1623 Q425 2SA812 Q426 2SC1623 Q427 2SA812
Q428 2SK94 Q429 2SK94
Q430 2SC2757 Q431 2SC2757 Q432 2SA1226 Q433 2SC1623 Q434 2SA812 Q435 2SC1623 Q436 2SA812 IC402 BX1082
402
TP403
TP404
TP405
E401
RV403:B FREQ 2
RV404:B FREQ 3
C3
C2
C5
C4
Q3 2SC1623 AMP
Q4 2SC1623 BUFF
IC4 μPC271C
Q5 2SA812 Q6 2SC1623 Q7 2SC1623 Q8 2SA812
INV AMP
D4 1S2837
D5 1S2837
D6 1S2837
TP2
TP4
E1
Q10 2SC2757 Q11 2SC2757 Q12 2SA1226 Q13 2SC1623 Q14 2SA812 Q15 2SC1623 Q16 2SA812
INV AMP
CN10 CHARACTOR VIDEO AT 14-2
CARACTOR VIDEO IN 2
CN11 SYNC OUT (X) 1
CN11 SYNC OUT
CN12 SYNC OUT 1 GND 2
AT 27-1
CN5 VBS OUT1 (G) 3 VBS OUT2 (G) 4
CN11 SYNC OUT (G) 2
CN5 VBS OUT1 (X) 1
CN8 VBS OUT 1
CN5 VBS OUT2 (X) 3
CN9 VBS OUT 2
CN10 CARACTOR VIDEO IN 1
14-1 CHARACTOR AT VIDEO
CN104 2
CN9 MONITOR OUT (X) 1
CN10 MONITOR OUT
CN10 GND 3
CN9 MONITOR OUT (G) 2
CN6 R OUT (G) 2
CN6 R OUT (X) 1
CN5 R/R-Y/C OUT
CN7 G OUT (X) 1
CN3 G/Y/Y OUT
CN7 G OUT (G) 2
CN8 B OUT (X) 1
CN4 B/B-Y OUT
CN8 B OUT (G) 2

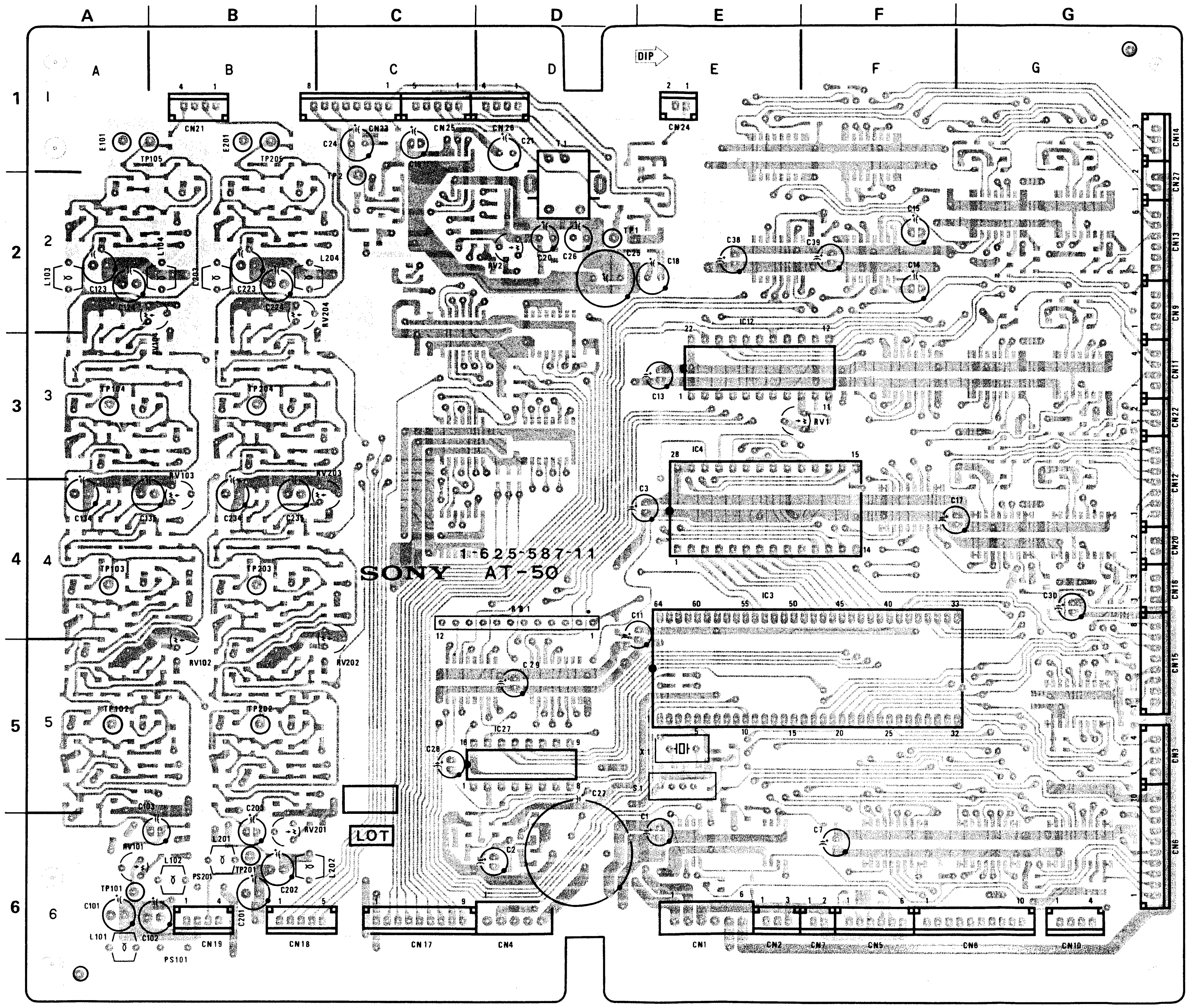
## AT-50 BOARD (AUTO CONTROL)

Ser.No.10001-10580 (UC)
30001-30370 (J)
40001-40160 (EK)

AT-50 (1-625-587-11)

| | |
|---|---|
| CN1 | E - 6 C |
| | E - 6 S |
| CN2 | E - 6 C |
| | E - 6 S |
| CN3 | G - 5 C |
| | G - 5 S |
| CN4 | D - 6 C |
| | D - 6 S |
| CN5 | F - 6 C |
| | F - 6 S |
| CN6 | G - 6 C |
| | G - 6 S |
| CN7 | F - 6 C |
| | F - 6 S |
| CN8 | G - 6 C |
| | G - 6 S |
| CN9 | G - 2 C |
| | G - 2 S |
| CN10 | G - 6 C |
| | G - 6 S |
| CN11 | G - 3 C |
| | G - 3 S |
| CN12 | G - 3 C |
| | G - 3 S |
| CN13 | G - 2 C |
| | G - 2 S |
| CN14 | G - 1 C |
| | G - 1 S |
| CN15 | G - 5 C |
| | G - 5 S |
| CN16 | G - 4 C |
| | G - 4 S |
| CN17 | C - 6 C |
| | C - 6 S |
| CN18 | C - 6 C |
| | C - 6 S |
| CN19 | B - 6 C |
| | B - 6 S |
| CN20 | G - 4 C |
| | G - 4 S |
| CN21 | B - 1 C |
| | B - 1 S |
| CN22 | G - 3 C |
| | G - 3 S |
| CN23 | C - 1 C |
| | C - 1 S |
| CN24 | E - 1 C |
| | E - 1 S |
| CN25 | C - 1 C |
| | C - 1 S |
| CN26 | D - 1 C |
| | D - 1 S |
| CN27 | G - 2 C |
| | G - 2 S |
| D1 | E - 6 S |
| D3 | C - 2 S |
| D4 | C - 6 S |
| D5 | E - 2 S |
| D7 | D - 2 S |
| D8 | C - 2 S |
| D101 | A - 6 S |
| D201 | B - 6 S |
| E101 | A - 1 C |
| E201 | B - 1 C |
| IC1 | E - 6 S |
| IC2 | E - 6 S |
| IC3 | F - 5 C |
| | F - 5 S |
| IC4 | F - 4 C |
| | F - 4 S |
| IC5 | F - 6 S |
| IC6 | G - 6 S |
| IC7 | G - 6 S |
| IC8 | G - 5 S |
| IC9 | F - 4 S |
| IC10 | F - 3 S |
| IC11 | F - 2 S |
| IC12 | E - 3 C |
| | E - 3 S |
| IC13 | F - 2 S |
| IC14 | G - 3 S |
| IC15 | G - 4 S |
| IC16 | G - 4 S |
| IC17 | G - 3 S |
| IC18 | G - 2 S |
| IC19 | G - 2 S |
| IC20 | D - 3 S |
| IC21 | D - 2 S |
| IC22 | C - 3 S |
| IC23 | C - 3 S |
| IC24 | C - 1 S |
| IC25 | E - 5 S |
| IC26 | E - 5 S |
| IC27 | E - 5 C |
| | E - 5 S |
| IC28 | F - 1 S |
| IC29 | F - 1 S |
| IC30 | C - 4 S |
| Q1 | D - 6 S |
| Q2 | D - 6 S |
| Q3 | E - 6 S |
| Q4 | E - 5 S |
| Q5 | G - 3 S |
| Q6 | G - 2 S |
| Q7 | G - 4 S |
| Q8 | G - 4 S |
| Q9 | G - 4 S |
| Q10 | G - 4 S |
| Q11 | G - 4 S |
| Q12 | G - 4 S |
| Q13 | G - 4 S |
| Q14 | G - 4 S |
| Q15 | G - 3 S |
| Q16 | G - 2 S |
| Q17 | G - 2 S |
| Q18 | G - 3 S |
| Q19 | G - 2 S |
| Q20 | G - 1 S |
| Q21 | G - 1 S |
| Q22 | G - 2 S |
| Q23 | G - 2 S |
| Q24 | G - 1 S |
| Q25 | G - 1 S |
| Q26 | G - 2 S |
| Q27 | E - 1 S |
| Q28 | E - 2 S |
| Q29 | C - 2 S |
| Q30 | C - 2 S |
| Q31 | C - 2 S |
| Q32 | C - 2 S |
| Q101 | A - 6 S |
| Q104 | A - 5 S |
| Q105 | B - 5 S |
| Q106 | A - 5 S |
| Q107 | A - 5 S |
| Q108 | B - 5 S |
| Q109 | A - 5 S |
| Q110 | B - 5 S |
| Q111 | A - 5 S |
| Q112 | A - 4 S |
| Q113 | A - 4 S |
| Q114 | A - 4 S |
| Q115 | A - 4 S |
| Q116 | B - 4 S |
| Q117 | A - 4 S |
| Q118 | B - 4 S |
| Q119 | B - 4 S |
| Q121 | A - 3 S |
| Q122 | B - 3 S |
| Q124 | A - 3 S |
| Q125 | B - 3 S |
| Q126 | A - 3 S |
| Q127 | B - 3 S |
| Q128 | B - 3 S |
| Q129 | A - 3 S |
| Q130 | A - 2 S |
| Q131 | B - 2 S |
| Q132 | A - 2 S |
| Q133 | A - 2 S |
| Q134 | B - 2 S |
| Q135 | A - 2 S |
| Q136 | B - 2 S |
| Q137 | A - 6 S |
| Q201 | B - 6 S |
| Q204 | B - 5 S |
| Q205 | B - 5 S |
| Q206 | B - 5 S |
| Q207 | B - 5 S |
| Q208 | C - 5 S |
| Q209 | B - 5 S |
| Q210 | C - 5 S |
| Q211 | B - 5 S |
| Q212 | B - 4 S |
| Q213 | B - 4 S |
| Q214 | B - 4 S |
| Q215 | B - 4 S |
| Q216 | C - 4 S |
| Q217 | B - 4 S |
| Q218 | C - 4 S |
| Q225 | C - 3 S |
| Q227 | C - 3 S |
| Q228 | B - 3 S |
| Q230 | B - 2 S |
| Q231 | B - 2 S |
| Q232 | B - 2 S |
| Q233 | B - 2 S |
| Q234 | B - 2 S |
| Q235 | B - 2 S |
| Q236 | C - 2 S |
| Q237 | B - 6 S |
| RB1 | D - 4 C |
| RV1 | E - 3 C |
| RV2 | D - 2 C |
| RV101 | A - 6 C |
| RV102 | B - 4 C |
| RV103 | B - 4 C |
| RV104 | B - 2 C |
| RV201 | B - 6 C |
| RV202 | C - 4 C |
| RV203 | C - 4 C |
| RV204 | B - 2 C |
| S1 | E - 5 C |
| TP1 | D - 2 C |
| TP2 | C - 2 C |
| TP101 | A - 6 C |
| TP102 | A - 5 C |
| TP103 | A - 4 C |
| TP104 | A - 3 C |
| TP105 | A - 1 C |
| TP201 | B - 6 C |
| TP202 | B - 5 C |
| TP203 | B - 4 C |
| TP204 | B - 3 C |
| TP205 | B - 1 C |
| T1 | D-2 C |
| X1 | E - 5 C |

∗-∗ C; COMPONENT SIDE
∗-∗ S; SOLDERING SIDE


A
B
C
D
E
F
G
1
2
3
4
5
6
DIP
CN21
CN23
CN25
CN29
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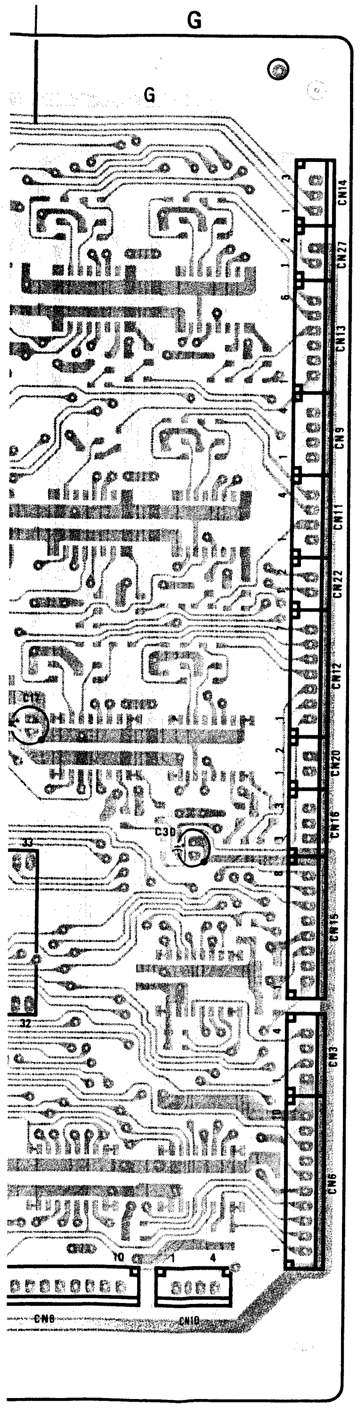
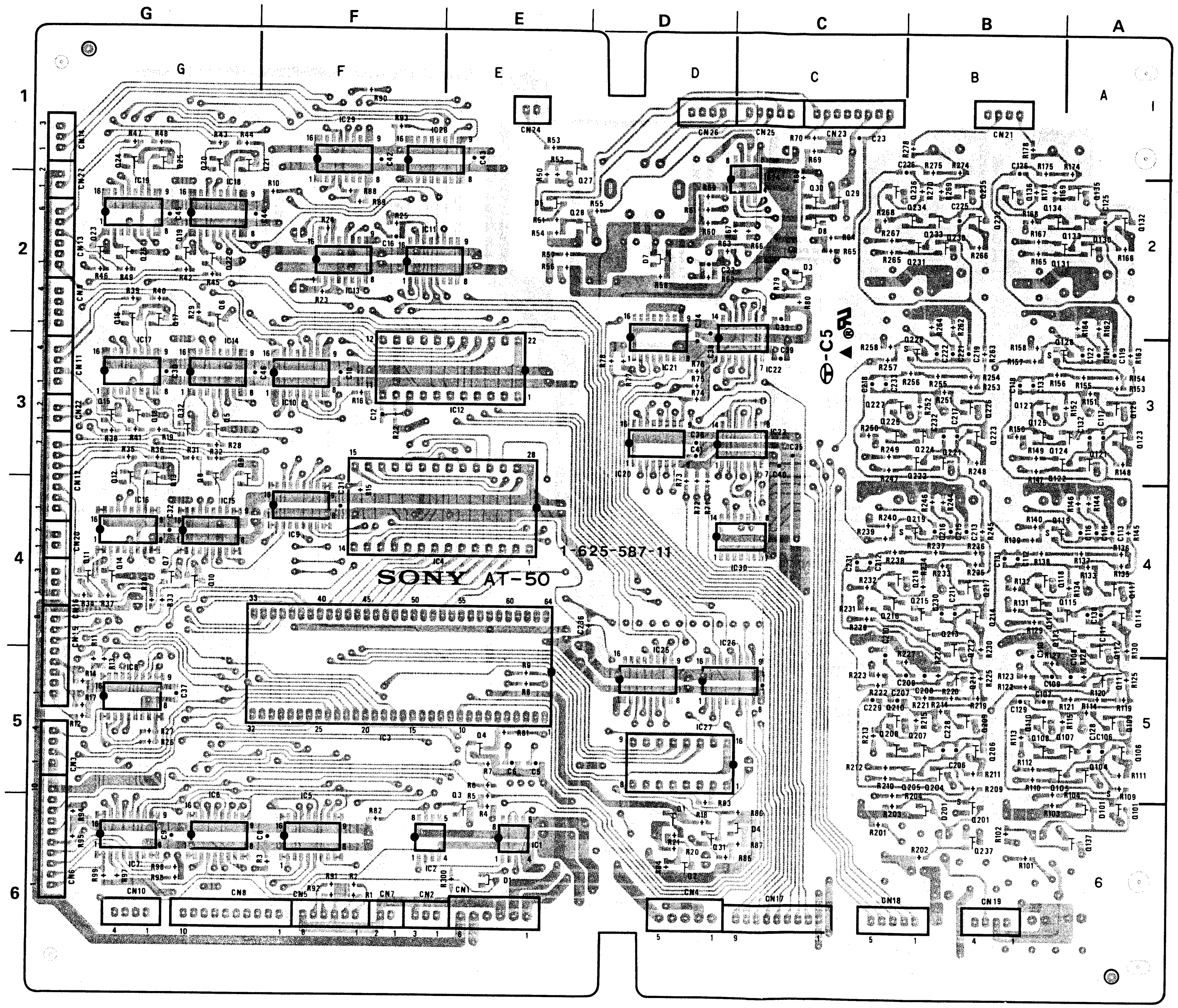
CN14
CN27
CN13
CN9
CN11
CN22
CN12
CN20
CN16
CN15
CN3
CN6
CN19
CN18
CN17
CN4
CN1
CN2
CN7
CN5
CN8
CN10
IC12
IC4
IC3
IC27
T1
RV1
RV2
RV101
RV102
RV103
RV201
RV202
RV203
RV204
TP101
TP102
TP103
TP104
TP105
TP201
TP202
TP203
TP204
TP205
TP1
TP2
E101
E201
L101
L102
L103
L104
L201
L202
L204
PS101
PS201
X1
1-625-587-11
SONY AT-50
LOT

AT-50 – COMPONENT SIDE –
1-625-587-11
CCU-M7 (J, UC)
CCU-M7P (EK)


G
G
CN14
CN27
CN13
CN9
CN11
CN22
CN12
CN20
CN16
CN19
CN3
CN6
CN10
CN8

**AT-50** – COMPONENT SIDE –
1-625-587-11
CCU-M7 (J, UC)
CCU-M7P (EK)


G
F
E
D
C
B
A
1
2
3
4
5
6
SONY AT-50
1-625-587-11
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC20
IC21
IC22
IC25
IC26
IC27
IC28
IC29
IC30
CN1
CN2
CN4
CN5
CN7
CN8
CN10
CN17
CN18
CN19
CN21
CN23
CN24
CN25
CN26

**AT-50** – SOLDER SIDE –
1-625-587-11
CCU-M7 (J, UC)
CCU-M7P (EK)

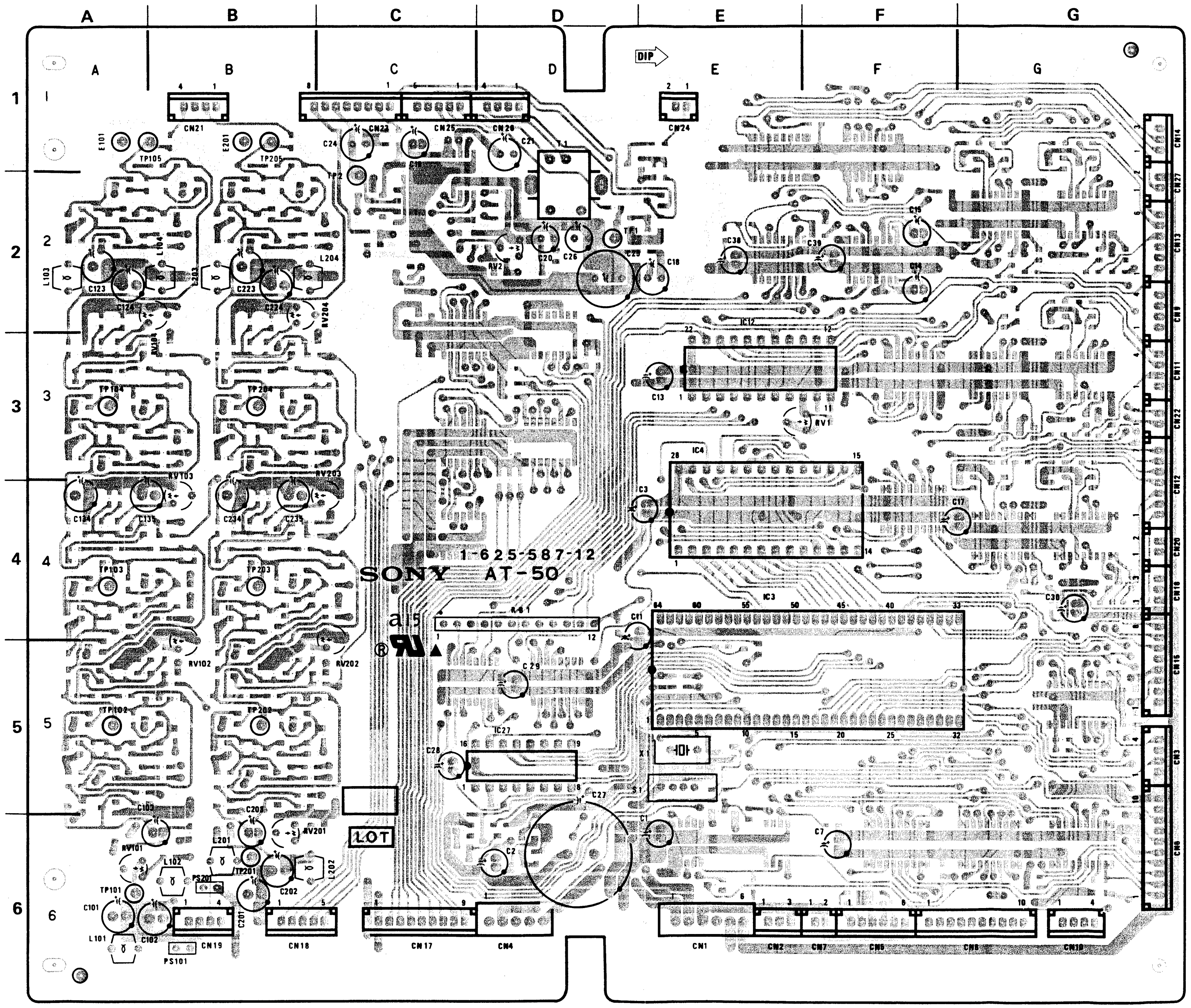
# AT-50 BOARD (AUTO CONTROL)

| Ser.No. | |
|---|---|
| 10581- | (UC) |
| 30371- | (J) |
| 40161- | (EK) |

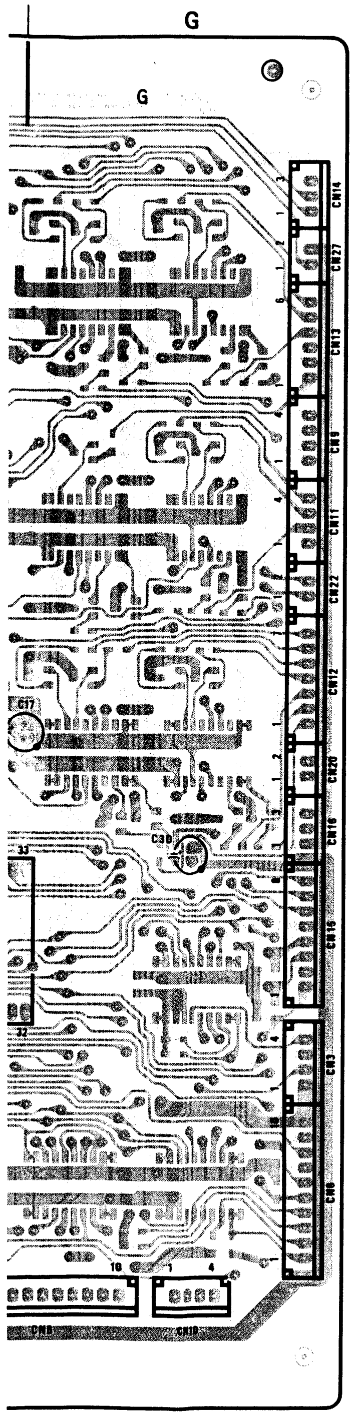
AT-50 (1-625-587-12)

| | |
|---|---|
| CN1 | E - 6 C |
| | E - 6 S |
| CN2 | E - 6 C |
| | F - 6 S |
| CN3 | G - 5 C |
| | G - 5 S |
| CN4 | D - 6 C |
| | D - 6 S |
| CN5 | F - 6 C |
| | F - 6 S |
| CN6 | G - 6 C |
| | G - 6 S |
| CN7 | F - 6 C |
| | F - 6 S |
| CN8 | G - 6 C |
| | G - 6 S |
| CN9 | G - 2 C |
| | G - 2 S |
| CN10 | G - 6 C |
| | G - 6 S |
| CN11 | G - 3 C |
| | G - 3 S |
| CN12 | G - 4 C |
| | G - 4 S |
| CN13 | G - 2 C |
| | G - 2 S |
| CN14 | G - 1 C |
| | G - 1 S |
| CN15 | G - 5 C |
| | G - 5 S |
| CN16 | G - 4 C |
| | G - 4 S |
| CN17 | C - 6 C |
| | C - 6 S |
| CN18 | B - 6 C |
| | C - 6 S |
| CN19 | B - 6 C |
| | B - 6 S |
| CN20 | G - 4 C |
| | G - 4 S |
| CN21 | B - 1 C |
| | B - 1 S |
| CN22 | G - 3 C |
| | G - 3 S |
| CN23 | C - 1 C |
| | C - 1 S |
| CN24 | E - 1 C |
| | E - 1 S |
| CN25 | C - 1 C |
| | C - 1 S |
| CN26 | D - 1 C |
| | D - 1 S |
| CN27 | G - 2 C |
| | G - 2 S |
| D1 | E - 6 S |
| D3 | C - 2 S |
| D4 | C - 6 S |
| D5 | E - 2 S |
| D7 | D - 2 S |
| D8 | C - 2 S |
| D9 | E - 4 S |
| D101 | A - 6 S |
| D201 | B - 6 S |
| E101 | A - 1 C |
| E201 | B - 1 C |
| IC1 | E - 6 S |
| IC2 | F - 6 S |
| IC3 | F - 5 C |
| | F - 5 S |
| IC4 | E - 4 C |
| | E - 4 S |
| IC5 | F - 6 S |
| IC6 | G - 6 S |
| IC7 | G - 6 S |
| IC8 | G - 5 S |
| IC9 | F - 4 S |
| IC10 | F - 3 S |
| IC11 | F - 2 S |
| IC12 | E - 3 C |
| | E - 3 S |
| IC13 | F - 2 S |
| IC14 | G - 3 S |
| IC15 | G - 4 S |
| IC16 | G - 4 S |
| IC17 | G - 3 S |
| IC18 | G - 2 S |
| IC19 | G - 2 S |
| IC20 | D - 3 S |
| IC21 | D - 3 S |
| IC22 | C - 3 S |
| IC23 | C - 3 S |
| IC24 | C - 2 S |
| IC25 | D - 5 S |
| IC26 | D - 5 S |
| IC27 | D - 5 C |
| | D - 5 S |
| IC28 | F - 1 S |
| IC29 | F - 1 S |
| IC30 | C - 4 S |
| Q1 | D - 6 S |
| Q2 | D - 6 S |
| Q3 | E - 6 S |
| Q4 | E - 5 S |
| Q5 | G - 3 S |
| Q6 | G - 2 S |
| Q7 | G - 4 S |
| Q8 | G - 4 S |
| Q9 | G - 4 S |
| Q10 | G - 4 S |
| Q11 | G - 4 S |
| Q12 | G - 4 S |
| Q13 | G - 4 S |
| Q14 | G - 4 S |
| Q15 | G - 3 S |
| Q16 | G - 2 S |
| Q17 | G - 2 S |
| Q18 | G - 3 S |
| Q19 | G - 2 S |
| Q20 | G - 1 S |
| Q21 | G - 1 S |
| Q22 | G - 2 S |
| Q23 | G - 2 S |
| Q24 | G - 1 S |
| Q25 | G - 1 S |
| Q26 | G - 2 S |
| Q27 | E - 1 S |
| Q28 | E - 2 S |
| Q29 | C - 2 S |
| Q30 | C - 2 S |
| Q31 | D - 6 S |
| Q32 | G - 3 S |
| Q101 | A - 6 S |
| Q104 | A - 5 S |
| Q105 | B - 5 S |
| Q106 | A - 5 S |
| Q107 | A - 5 S |
| Q108 | B - 5 S |
| Q109 | A - 5 S |
| Q110 | B - 5 S |
| Q111 | A - 5 S |
| Q112 | A - 4 S |
| Q113 | A - 4 S |
| Q114 | A - 4 S |
| Q115 | A - 4 S |
| Q116 | B - 4 S |
| Q117 | A - 4 S |
| Q118 | B - 4 S |
| Q119 | B - 4 S |
| Q121 | A - 3 S |
| Q122 | B - 3 S |
| Q123 | A - 3 S |
| Q124 | A - 3 S |
| Q125 | B - 3 S |
| Q126 | A - 3 S |
| Q127 | B - 3 S |
| Q128 | B - 3 S |
| Q130 | A - 2 S |
| Q131 | B - 2 S |
| Q132 | A - 2 S |
| Q133 | A - 2 S |
| Q134 | B - 2 S |
| Q135 | A - 2 S |
| Q136 | B - 2 S |
| Q137 | A - 6 S |
| Q201 | B - 6 S |
| Q204 | B - 5 S |
| Q205 | B - 5 S |
| Q206 | B - 5 S |
| Q207 | B - 5 S |
| Q208 | C - 5 S |
| Q209 | B - 5 S |
| Q210 | C - 5 S |
| Q211 | B - 5 S |
| Q212 | B - 4 S |
| Q213 | B - 4 S |
| Q214 | B - 4 S |
| Q215 | B - 4 S |
| Q216 | C - 4 S |
| Q217 | B - 4 S |
| Q218 | C - 4 S |
| Q219 | B - 4 S |
| Q221 | B - 3 S |
| Q223 | B - 3 S |
| Q224 | B - 3 S |
| Q225 | C - 3 S |
| Q226 | B - 3 S |
| Q227 | C - 3 S |
| Q228 | B - 3 S |
| Q230 | B - 2 S |
| Q231 | B - 2 S |
| Q232 | B - 2 S |
| Q233 | B - 2 S |
| Q234 | B - 2 S |
| Q235 | B - 2 S |
| Q236 | C - 2 S |
| Q237 | B - 6 S |
| RB1 | D - 4 C |
| RV1 | E - 3 C |
| RV2 | D - 2 C |
| RV101 | A - 6 C |
| RV102 | B - 5 C |
| RV103 | B - 4 C |
| RV104 | B - 2 C |
| RV201 | B - 6 C |
| RV202 | C - 5 C |
| RV203 | C - 4 C |
| RV204 | B - 2 C |
| S1 | E - 5 C |
| TP1 | D - 2 C |
| TP2 | C - 2 C |
| TP101 | A - 6 C |
| TP102 | A - 5 C |
| TP103 | A - 4 C |
| TP104 | A - 3 C |
| TP105 | A - 1 C |
| TP201 | B - 6 C |
| TP202 | B - 5 C |
| TP203 | B - 4 C |
| TP204 | B - 3 C |
| TP205 | B - 1 C |
| T1 | D-2 C |
| X1 | E - 5 C |

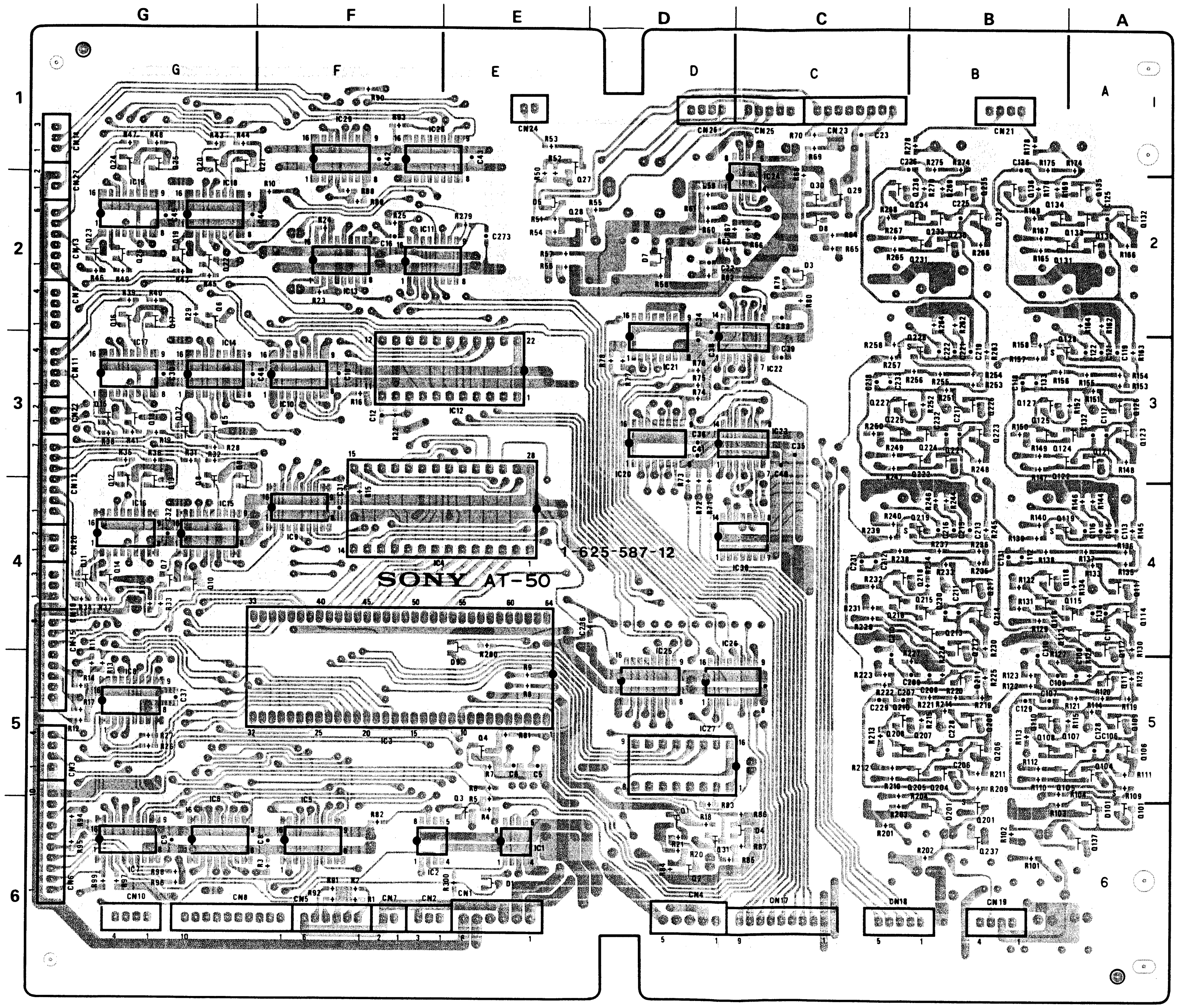
*-* C; COMPONENT SIDE
*-* S; SOLDERING SIDE


A
B
C
D
E
F
G
1
2
3
4
5
6
DIP
1-625-587-12
SONY AT-50
LOT
IC3
IC4
IC12
IC27
CN1
CN2
CN7
CN5
CN8
CN10
CN4
CN17
CN18
CN19
CN21
CN22
CN23
CN24
CN25
CN26
CN14
CN27
CN13
CN9
CN11
CN12
CN20
CN16
CN15
CN3
CN6
TP101
TP102
TP103
TP104
TP105
TP201
TP202
TP203
TP204
TP205
RV101
RV102
RV103
RV201
RV202
RV203
RV204
RV1
RV2
L101
L102
L103
L201
L202
L204
E101
E201
PS101
PS201
X1
S1
C2
C3
C7
C11
C13
C17
C18
C20
C21
C24
C26
C27
C29
C30
C39

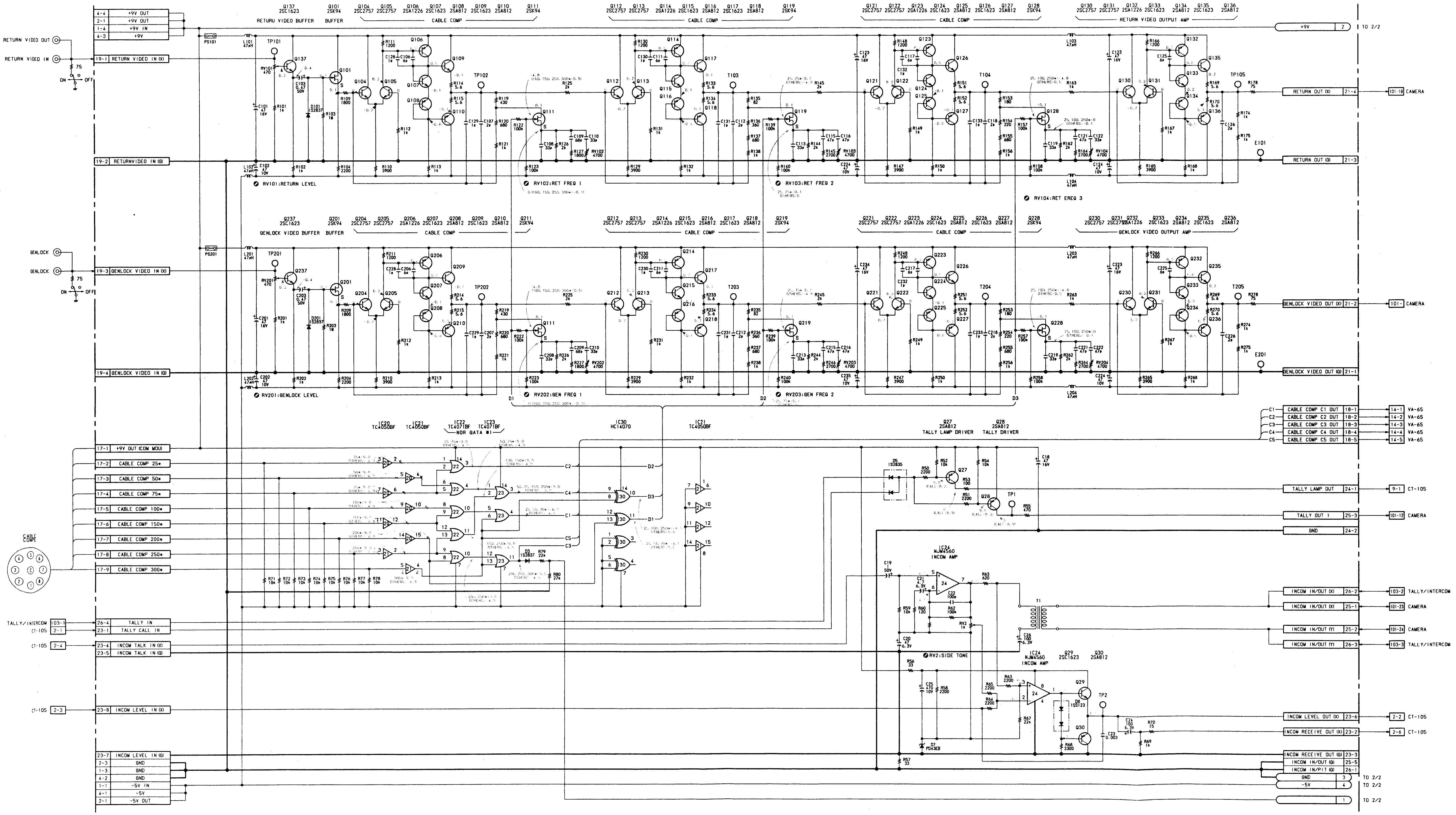
AT-50 – COMPONENT SIDE –
1-625-587-12
CCU-M7 (J, UC)
CCU-M7P (EK)

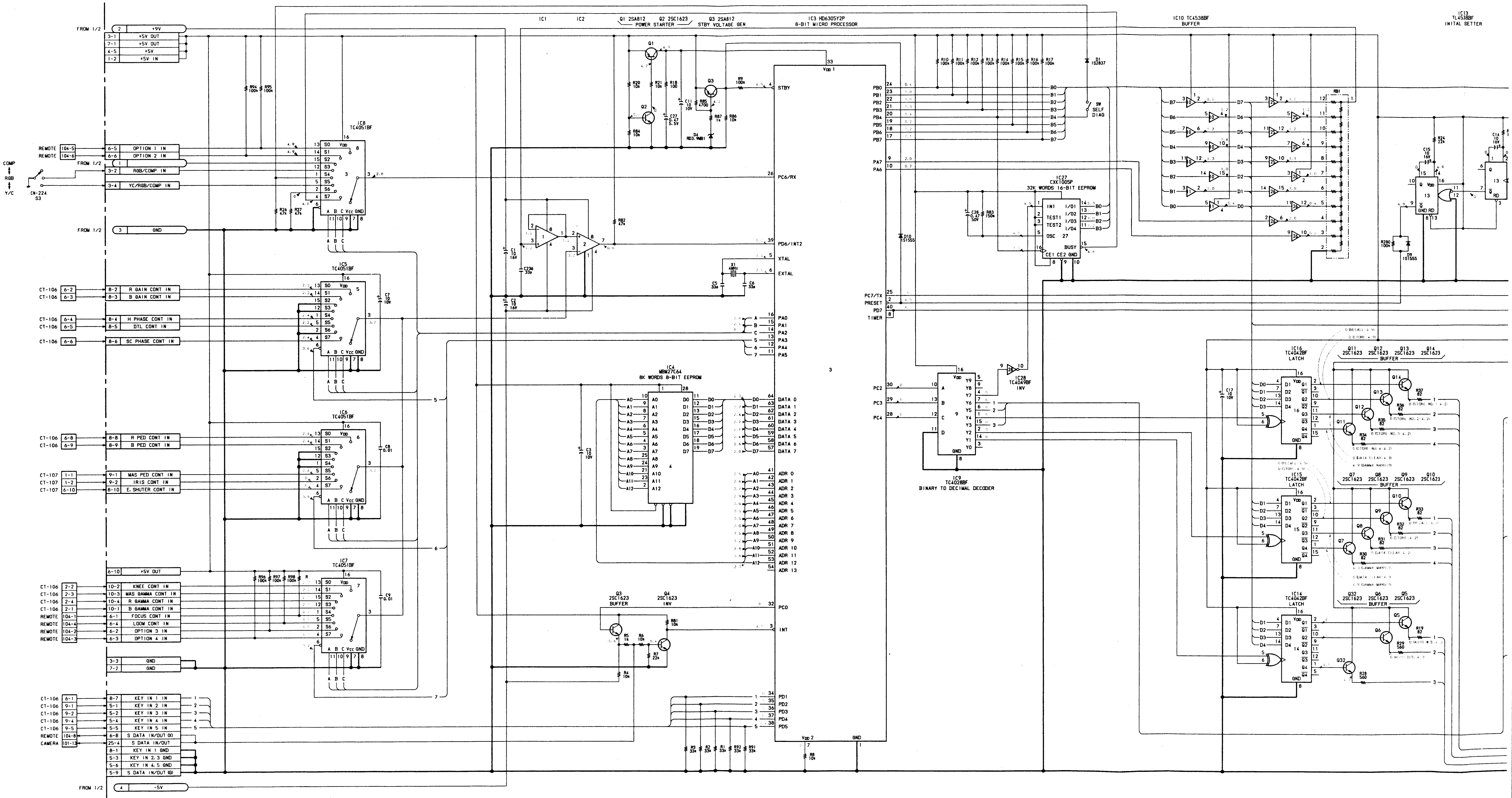

G
CN14
CN27
CN13
CN9
CN11
CN22
CN12
CN20
CN18
CN16
CN3
CN6
CN10
CN19

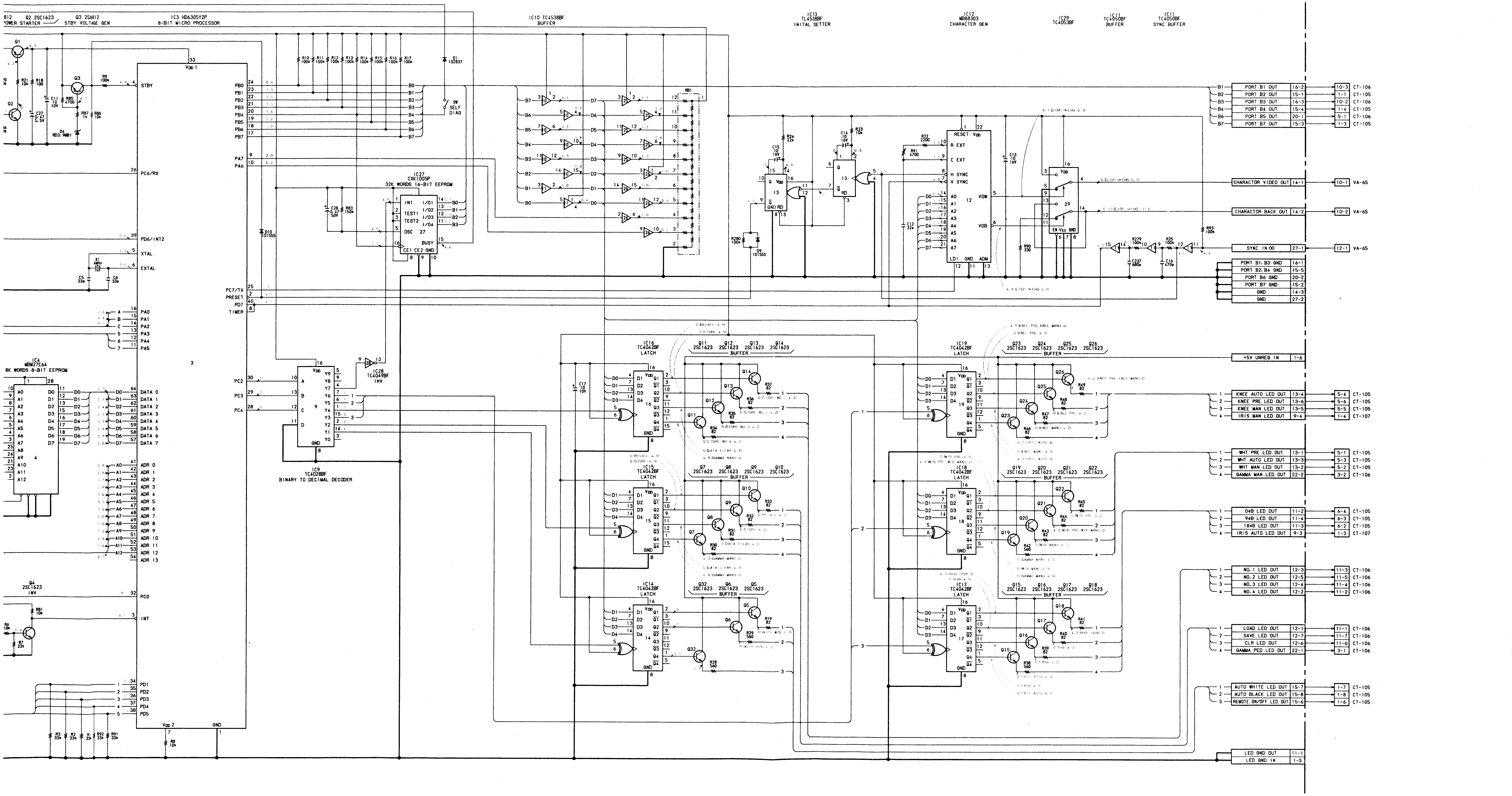
**AT-50** – COMPONENT SIDE –
1-625-587-12
CCU-M7 (J, UC)
CCU-M7P (EK)


G
F
E
D
C
B
A
1
2
3
4
5
6
1-625-587-12
SONY AT-50
CN24
CN26
CN25
CN23
CN21
CN4
CN17
CN18
CN19
CN10
CN8
CN5
CN7
CN2
CN1

**AT-50** – SOLDER SIDE –
1-625-587-12
CCU-M7 (J, UC)
CCU-M7P (EK)

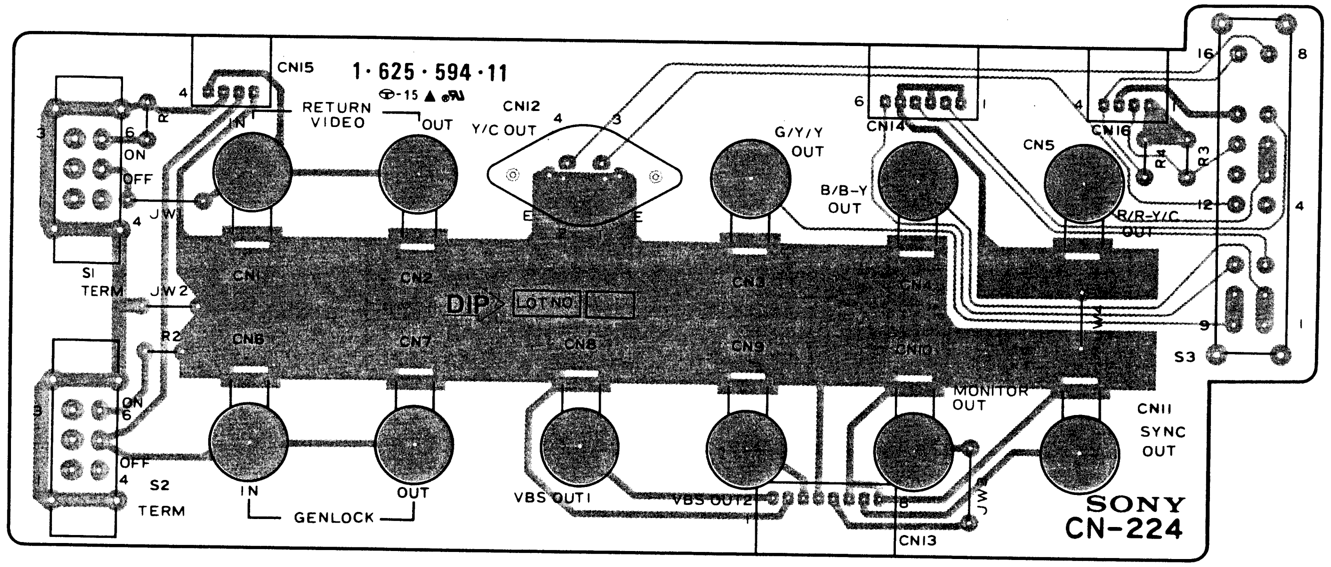

RETURN VIDEO OUT
RETURN VIDEO IN
GENLOCK
CABLE COMP
TALLY/INTERCOM
CT-105
4-4 +9V OUT
2-1 +9V OUT
1-4 +9V IN
4-3 +9V
19-1 RETURN VIDEO IN (X)
19-2 RETURNVIDEO IN (G)
19-3 GENLOCK VIDEO IN (X)
19-4 GENLOCK VIDEO IN (G)
17-1 +9V OUT (COM MOU)
17-2 CABLE COMP 25m
17-3 CABLE COMP 50m
17-4 CABLE COMP 75m
17-5 CABLE COMP 100m
17-6 CABLE COMP 150m
17-7 CABLE COMP 200m
17-8 CABLE COMP 250m
17-9 CABLE COMP 300m
26-4 TALLY IN
23-1 TALLY CALL IN
23-4 INCOM TALK IN (X)
23-5 INCOM TALK IN (G)
23-8 INCOM LEVEL IN (X)
23-7 INCOM LEVEL IN (G)
2-3 GND
1-3 GND
4-2 GND
1-1 -5V IN
4-1 -5V
2-1 -5V OUT
RETURU VIDEO BUFFER
BUFFER
CABLE COMP
RETURN VIDEO OUTPUT AMP
GENLOCK VIDEO BUFFER
GENLOCK VIDEO OUTPUT AMP
RV101:RETURN LEVEL
RV102:RET FREQ 1
RV103:RET FREQ 2
RV104:RET FREQ 3
RV201:GENLOCK LEVEL
RV202:GEN FREQ 1
RV203:GEN FREQ 2
IC20 TC4050BF
IC21 TC4050BF
IC22 TC4071BF
IC23 TC4071BF
NOR GATA #1
IC30 HC14070
IC21 TC4050BF
Q27 2SA812 TALLY LAMP DRIVER
Q28 2SA812 TALLY DRIVER
IC24 NJM4560 INCOM AMP
IC24 NJM4560 INCOM AMP
Q29 2SC1623
Q30 2SA812
RV2:SIDE TONE
+9V 2 TO 2/2
RETURN OUT (X) 21-4 101-18 CAMERA
RETURN OUT (G) 21-3
GENLOCK VIDEO OUT (X) 21-2 101- CAMERA
GENLOCK VIDEO OUT (G) 21-1
CABLE COMP C1 OUT 18-1 14-1 VA-65
CABLE COMP C2 OUT 18-2 14-2 VA-65
CABLE COMP C3 OUT 18-3 14-3 VA-65
CABLE COMP C4 OUT 18-4 14-4 VA-65
CABLE COMP C5 OUT 18-5 14-5 VA-65
TALLY LAMP OUT 24-1 9-1 CT-105
TALLY OUT 1 25-3 101-12 CAMERA
GND 24-2
INCOM IN/OUT (X) 26-2 103-2 TALLY/INTERCOM
INCOM IN/OUT (X) 25-1 101-23 CAMERA
INCOM IN/OUT (Y) 25-2 101-24 CAMERA
INCOM IN/OUT (Y) 26-3 103-3 TALLY/INTERCOM
INCOM LEVEL OUT (X) 23-6 2-2 CT-105
INCOM RECEIVE OUT (X) 23-2 2-6 CT-105
INCOM RECEIVE OUT (G) 23-3
INCOM IN/OUT (G) 25-5
INCOM IN/PIT (G) 26-1
GND 3 TO 2/2
-5V 4 TO 2/2
1 TO 2/2


FROM 1/2
+9V
+5V OUT
+5V
+5V IN
REMOTE 104-5
REMOTE 104-6
OPTION 1 IN
OPTION 2 IN
COMP
RGB
Y/C
CN-224
S3
RGB/COMP IN
YC/RGB/COMP IN
GND
IC8 TC4051BF
IC5 TC4051BF
IC6 TC4051BF
IC7 TC4051BF
CT-106
CT-107
R GAIN CONT IN
B GAIN CONT IN
H PHASE CONT IN
DTL CONT IN
SC PHASE CONT IN
R PED CONT IN
B PED CONT IN
MAS PED CONT IN
IRIS CONT IN
E. SHUTER CONT IN
KNEE CONT IN
MAS GAMMA CONT IN
R GAMMA CONT IN
B GAMMA CONT IN
FOCUS CONT IN
LOOM CONT IN
OPTION 3 IN
OPTION 4 IN
KEY IN 1 IN
KEY IN 2 IN
KEY IN 3 IN
KEY IN 4 IN
KEY IN 5 IN
S DATA IN/OUT
KEY IN 1 GND
KEY IN 2,3 GND
KEY IN 4,5 GND
CAMERA
-5V
IC1
IC2
Q1 2SA812 Q2 2SC1623 POWER STARTER
Q3 2SA812 STBY VOLTAGE GEN
IC3 HD6305Y2P 8-BIT MICRO PROCESSOR
STBY
PC6/RX
PD6/INT2
XTAL
EXTAL
PA0
PA1
PA2
PA3
PA4
PA5
DATA 0
DATA 1
DATA 2
DATA 3
DATA 4
DATA 5
DATA 6
DATA 7
ADR 0
ADR 13
PC0
INT
PD1
PD2
PD3
PD4
PD5
IC4 MBM27C64 8K WORDS 8-BIT EEPROM
Q3 2SC1623 BUFFER
Q4 2SC1623 INV
X1 4MHz
IC10 TC4538BF BUFFER
IC13 TL4538BF INITAL SETTER
D1 1S2837
SW SELF DIAG
RB1
IC27 CXK1005P 32K WORDS 16-BIT EEPROM
D10 1S1555
D9 1S1555
PC7/TX
PRESET
PD7
TIMER
PC2
PC3
PC4
IC9 TC4028BF BINARY TO DECIMAL DECODER
IC28 TC4049BF INV
IC16 TC4042BF LATCH
IC15 TC4042BF LATCH
IC14 TC4042BF LATCH
Q11 Q12 Q13 Q14 2SC1623 BUFFER
Q7 Q8 Q9 Q10 2SC1623 BUFFER
Q32 Q6 Q5 2SC1623 BUFFER


Q2 2SC1623 POWER STARTER
Q3 2SA812 STBY VOLTAGE GEN
IC3 HD6305Y2P 8-BIT MICRO PROCESSOR
IC10 TC4538BF BUFFER
IC13 TL4538BF INITAL SETTER
IC12 MB88303 CHARACTER GEN
IC29 TC4053BF
IC11 TC4050BF BUFFER
IC11 TC4050BF SYNC BUFFER
IC27 CXK1005P 32K WORDS 16-BIT EEPROM
IC4 MBM27C64 8K WORDS 8-BIT EEPROM
IC9 TC4028BF BINARY TO DECIMAL DECODER
IC28 TC4049BF INV
Q4 2SC1623 INV
SW SELF DIAG
D1 1S2837
IC16 TC4042BF LATCH
IC15 TC4042BF LATCH
IC14 TC4042BF LATCH
IC19 TC4042BF LATCH
IC18 TC4042BF LATCH
IC17 TC4042BF LATCH
Q11 Q12 Q13 Q14 2SC1623 BUFFER
Q7 Q8 Q9 Q10 2SC1623 BUFFER
Q32 Q6 Q5 2SC1623 BUFFER
Q23 Q24 Q25 Q26 2SC1623 BUFFER
Q19 Q20 Q21 Q22 2SC1623 BUFFER
Q15 Q16 Q17 Q18 2SC1623 BUFFER
STBY
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PA7 PA6
PC6/RX
PD6/INT2
XTAL
EXTAL
PA0 PA1 PA2 PA3 PA4 PA5
DATA 0 DATA 1 DATA 2 DATA 3 DATA 4 DATA 5 DATA 6 DATA 7
ADR 0 ADR 1 ADR 2 ADR 3 ADR 4 ADR 5 ADR 6 ADR 7 ADR 8 ADR 9 ADR 10 ADR 11 ADR 12 ADR 13
PC0
INT
PD1 PD2 PD3 PD4 PD5
PC7/TX PRESET PD7 TIMER
PC2 PC3 PC4
RESET
R EXT
C EXT
H SYNC
V SYNC
LD1 GND ADM
VDW VOB
PORT B1 OUT 16-2 10-3 CT-106
PORT B2 OUT 15-1 1-1 CT-105
PORT B3 OUT 16-3 10-2 CT-106
PORT B4 OUT 15-4 1-4 CT-105
PORT B5 OUT 20-1 5-1 CT-106
PORT B7 OUT 15-3 1-3 CT-105
CHARACTOR VIDEO OUT 14-1 10-1 VA-65
CHARACTOR BACK OUT 14-2 10-2 VA-65
SYNC IN 00 27-1 12-1 VA-65
PORT B1, B3 GND 16-1
PORT B2, B4 GND 15-5
PORT B6 GND 20-2
PORT B7 GND 15-2
GND 14-3
GND 27-2
+5V UNREG IN 1-6
KNEE AUTO LED OUT 13-4 5-4 CT-105
KNEE PRE LED OUT 13-6 5-6 CT-105
KNEE MAN LED OUT 13-5 5-5 CT-105
IRIS MAN LED OUT 9-4 1-4 CT-107
WHT PRE LED OUT 13-1 5-1 CT-105
WHT AUTO LED OUT 13-3 5-3 CT-105
WHT MAN LED OUT 13-2 5-2 CT-105
GAMMA MAN LED OUT 22-2 3-2 CT-106
0dB LED OUT 11-2 6-4 CT-105
9dB LED OUT 11-4 6-3 CT-105
18dB LED OUT 11-3 6-2 CT-105
IRIS AUTO LED OUT 9-3 1-3 CT-107
NO. 1 LED OUT 12-3 11-3 CT-106
NO. 2 LED OUT 12-5 11-5 CT-106
NO. 3 LED OUT 12-4 11-4 CT-106
NO. 4 LED OUT 12-2 11-2 CT-106
LOAD LED OUT 12-1 11-1 CT-106
SAVE LED OUT 12-7 11-7 CT-106
CLR LED OUT 12-6 11-6 CT-106
GAMMA PED LED OUT 22-1 3-1 CT-106
AUTO WHITE LED OUT 15-7 1-7 CT-105
AUTO BLACK LED OUT 15-8 1-8 CT-105
REMOTE ON/OFF LED OUT 15-6 1-6 CT-105
LED GND OUT 11-1
LED GND IN 1-5

# FRAME
## CN-224 BOARD
## CT-105 BOARD
## CT-106 BOARD
## CT-107 BOARD
## CT-108 BOARD
## CT-109 BOARD
## JK-6 BOARD

Ser.No.10001-10580 (UC)
30001-30370 (J)
40001-40160 (EK)


CN15
1·625·594·11
RETURN
VIDEO
IN
OUT
CN12
Y/C OUT
G/Y/Y
OUT
B/B-Y
OUT
CN14
CN5
CN16
R/R-Y/C
OUT
R4
R3
16
8
12
4
9
1
S1
TERM
ON
OFF
JW1
JW2
R1
R2
DIP
LOT NO.
CN1
CN2
CN3
CN4
CN6
CN7
CN8
CN9
CN10
S3
MONITOR
OUT
CN11
SYNC
OUT
S2
TERM
IN
OUT
GENLOCK
VBS OUT1
VBS OUT2
CN13
JW3
SONY
CN-224

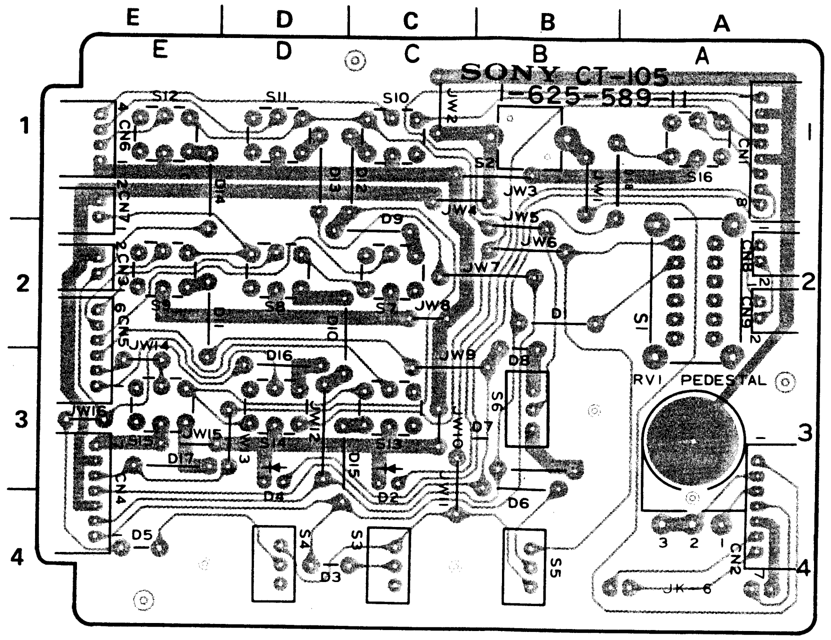
**CN-224** – COMPONENT SIDE –
1-625-594-11
CCU-M7 (J, UC)
CCU-M7P (EK)

CT-106 (1-625-590-11, 12)

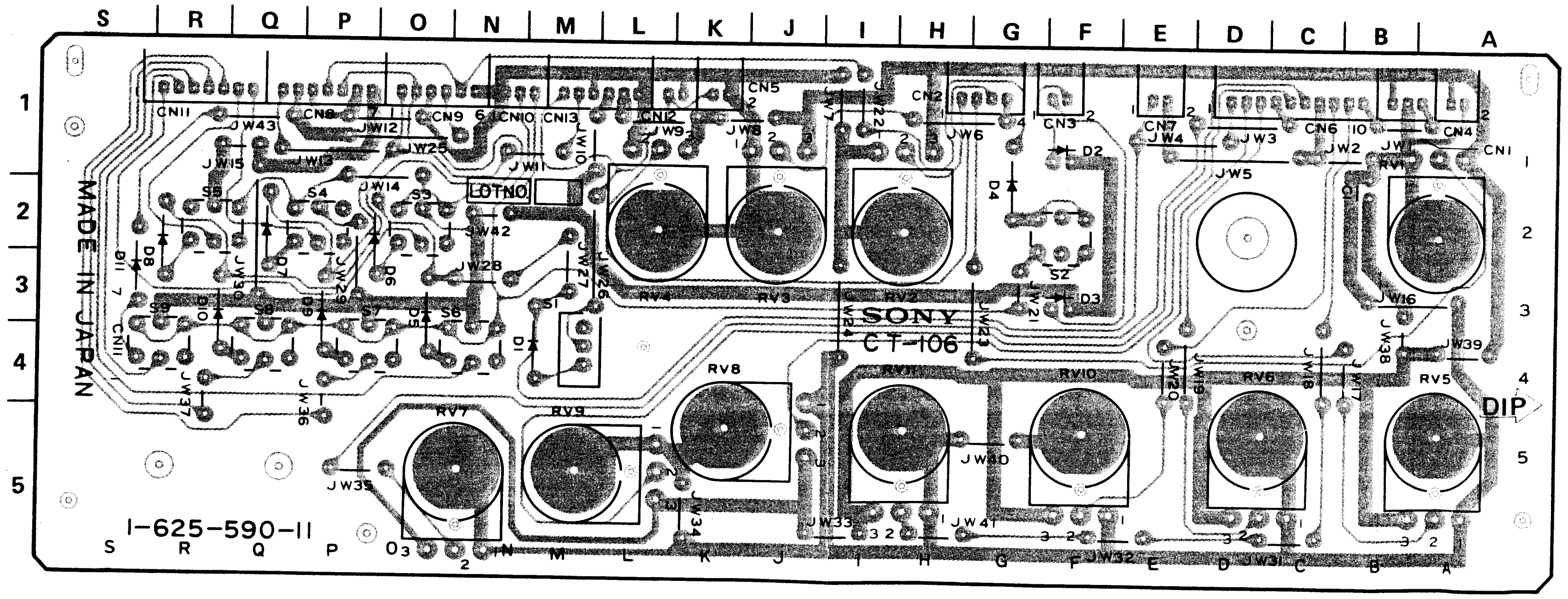
| | |
|---|---|
| CN1 | B - 1 |
| CN2 | G - 1 |
| CN3 | F - 1 |
| CN4 | A - 1 |
| CN5 | K - 1 |
| CN6 | C - 1 |
| CN7 | E - 1 |
| CN8 | P - 1 |
| CN9 | O - 1 |
| CN10 | N - 1 |
| CN11 | R - 1 |
| CN12 | L - 1 |
| CN13 | M - 1 |
| D1 | M - 4 |
| D2 | F - 1 |
| D3 | F - 3 |
| D4 | G - 1 |
| D5 | O - 3 |
| D6 | P - 2 |
| D7 | Q - 2 |
| D8 | R - 2 |
| D9 | P - 3 |
| D10 | R - 3 |
| D11 | S - 3 |
| RV1 | A - 2 |
| RV2 | H - 2 |
| RV3 | J - 2 |
| RV4 | L - 3 |
| RV5 | A - 5 |
| RV6 | D - 5 |
| RV7 | N - 5 |
| RV8 | K - 5 |
| RV9 | M - 5 |
| RV10 | F - 5 |
| RV11 | H - 5 |
| S1 | M - 4 |
| S2 | F - 2 |
| S3 | O - 2 |
| S4 | P - 2 |
| S5 | R - 2 |
| S6 | N - 4 |
| S7 | P - 4 |
| S8 | Q - 4 |
| S9 | R - 4 |

CT-105 (1-625-589-11)

| | |
|---|---|
| CN1 | A - 1 |
| CN2 | A - 4 |
| CN3 | F - 2 |
| CN4 | E - 3 |
| CN5 | E - 2 |
| CN6 | E - 1 |
| CN7 | E - 1 |
| CN8 | A - 2 |
| CN9 | A - 2 |
| D1 | B - 2 |
| D2 | C - 3 |
| D3 | D - 4 |
| D4 | D - 3 |
| D5 | E - 4 |
| D6 | B - 3 |
| D7 | B - 3 |
| D8 | B - 2 |
| D9 | C - 2 |
| D10 | D - 2 |
| D11 | E - 2 |
| D12 | C - 1 |
| D13 | D - 1 |
| D14 | E - 1 |
| D15 | C - 3 |
| D16 | D - 3 |
| D17 | E - 3 |
| D18 | A - 1 |
| RV1 | A - 3 |
| S1 | A - 2 |
| S2 | B - 1 |
| S3 | C - 4 |
| S4 | D - 4 |
| S5 | B - 4 |
| S6 | B - 3 |
| S7 | C - 2 |
| S8 | D - 2 |
| S9 | E - 2 |
| S10 | C - 1 |
| S11 | D - 1 |
| S12 | E - 1 |
| S13 | C - 3 |
| S14 | D - 3 |
| S15 | E - 3 |
| S16 | A - 1 |


E
D
C
B
A
1
2
3
4
SONY CT-105
1-625-589-11
S12
S11
S10
S2
S16
CN6
CN7
CN3
CN5
CN4
CN1
CN8
CN9
CN2
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW14
JW15
JW16
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
S1
S3
S4
S5
S6
S13
S14
S15
RV1
PEDESTAL
JK-6

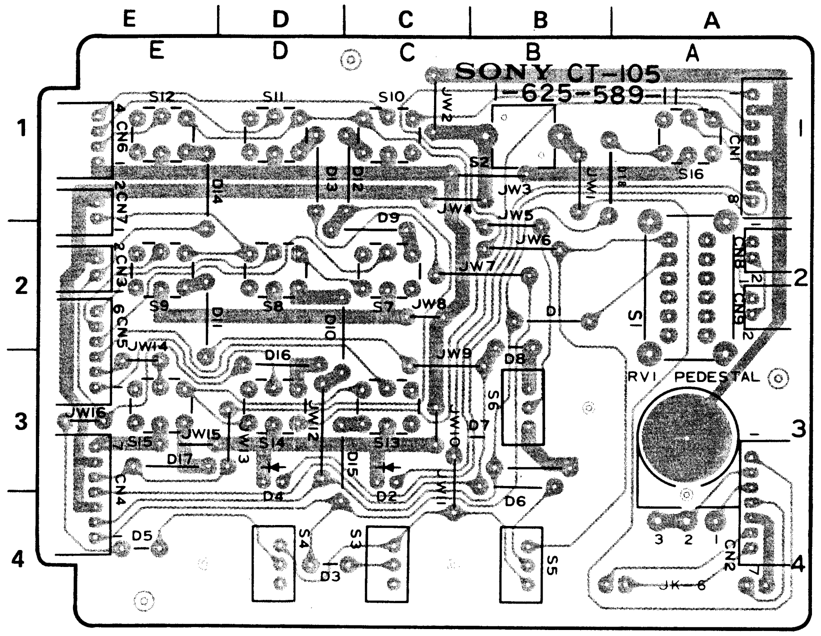
**CT-105** – SOLDER SIDE –
1-625-589-11
CCU-M7 (J, UC)
CCU-M7P (EK)


S
R
Q
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
CN11
CN8
CN9
CN10
CN13
CN12
CN5
CN2
CN3
CN7
CN6
CN4
CN1
LOT NO
MADE IN JAPAN
SONY
CT-106
1-625-590-11
RV1
RV2
RV3
RV4
RV5
RV6
RV7
RV8
RV9
RV10
RV11
S1
S2
S3
S4
S5
S6
S7
S8
S9
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
DIP

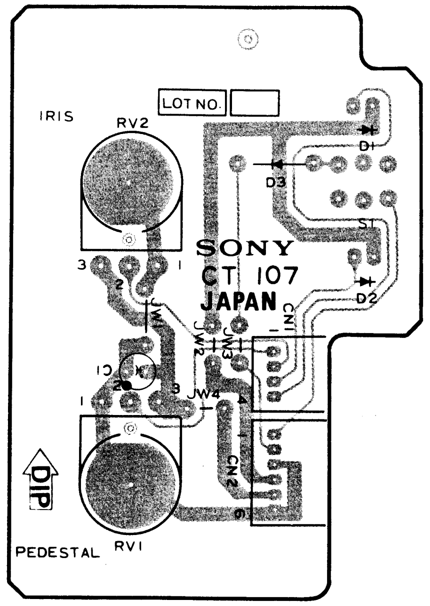
**CT-106** – SOLDER SIDE –
1-625-590-11, 12
CCU-M7 (J, UC)
CCU-M7P (EK)

CT-105 (1-625-589-11)

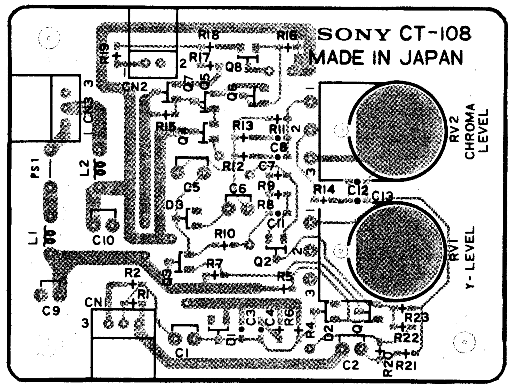
| | |
|---|---|
| CN1 | A - 1 |
| CN2 | A - 4 |
| CN3 | F - 2 |
| CN4 | E - 3 |
| CN5 | E - 2 |
| CN6 | E - 1 |
| CN7 | E - 1 |
| CN8 | A - 2 |
| CN9 | A - 2 |
| D1 | B - 2 |
| D2 | C - 3 |
| D3 | D - 4 |
| D4 | D - 3 |
| D5 | E - 4 |
| D6 | B - 3 |
| D7 | B - 3 |
| D8 | B - 2 |
| D9 | C - 2 |
| D10 | D - 2 |
| D11 | E - 2 |
| D12 | C - 1 |
| D13 | D - 1 |
| D14 | E - 1 |
| D15 | C - 3 |
| D16 | D - 3 |
| D17 | E - 3 |
| D18 | A - 1 |
| RV1 | A - 3 |
| S1 | A - 2 |
| S2 | B - 1 |
| S3 | C - 4 |
| S4 | D - 4 |
| S5 | B - 4 |
| S6 | B - 3 |
| S7 | C - 2 |
| S8 | D - 2 |
| S9 | E - 2 |
| S10 | C - 1 |
| S11 | D - 1 |
| S12 | E - 1 |
| S13 | C - 3 |
| S14 | D - 3 |
| S15 | E - 3 |
| S16 | A - 1 |


E
D
C
B
A
1
2
3
4
SONY CT-105
1-625-589-11
RV1 PEDESTAL
JK-6

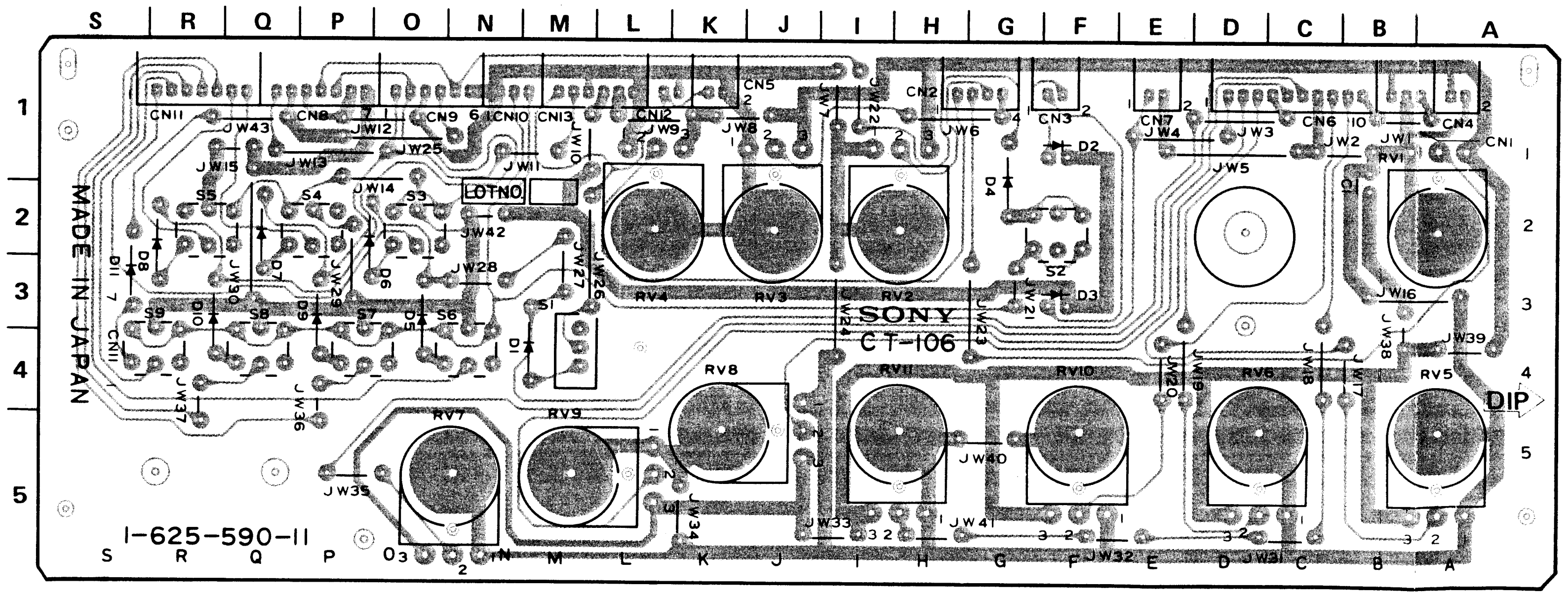
**CT-105** – SOLDER SIDE –
1-625-589-11
CCU-M7 (J, UC)
CCU-M7P (EK)


IRIS
RV2
LOT NO.
SONY
CT 107
JAPAN
DIP
PEDESTAL
RV1

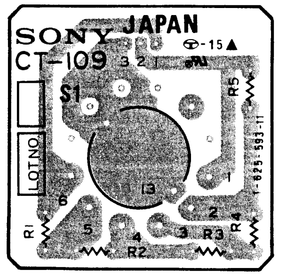
**CT-107** –SOLDER SIDE –
1-598-678-11
CCU-M7 (J, UC)
CCU-M7P (EK)


SONY CT-108
MADE IN JAPAN
RV2 CHROMA LEVEL
RV1 Y-LEVEL

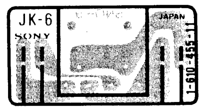
**CT-108** – SOLDER SIDE –
1-625-592-11, 12
CCU-M7 (J, UC)
CCU-M7P (EK)


S
R
Q
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
MADE IN JAPAN
LOTNO.
SONY
CT-106
DIP
1-625-590-11

**CT-106** – SOLDER SIDE –
1-625-590-11, 12
CCU-M7 (J, UC)
CCU-M7P (EK)


SONY JAPAN
CT-109
S1
LOT NO.

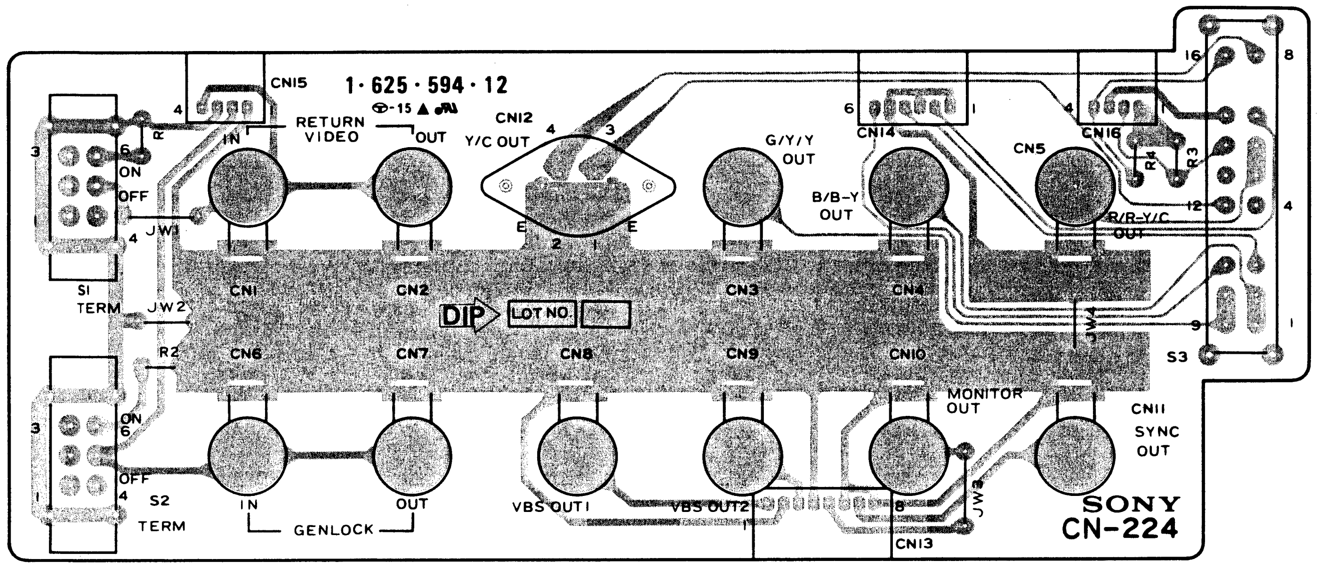
**CT-109** – COMPONENT SIDE –
1-625-593-11
CCU-M7 (J, UC)
CCU-M7P (EK)



**JK-6** – COMPONENT SIDE –
1-610-455-11
CCU-M7 (J, UC)
CCU-M7P (EK)

## FRAME
**CN-224 BOARD**
**CT-105 BOARD**
**CT-106 BOARD**
**CT-107 BOARD**
**CT-108 BOARD**
**CT-109 BOARD**
**JK-6 BOARD**

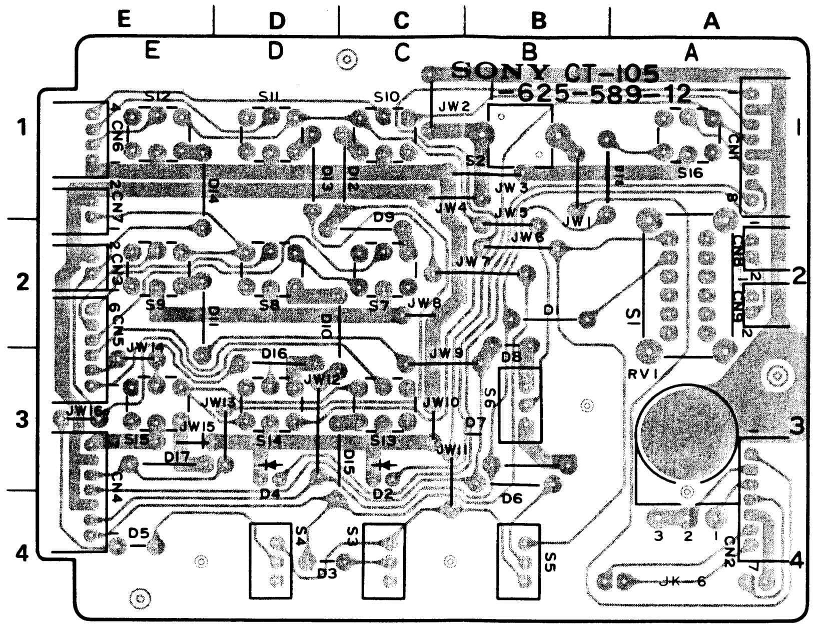
| | | |
|---|---|---|
| Ser.No. | 10581- | (UC) |
| | 30371- | (J) |
| | 40161- | (EK) |


CN15
1·625·594·12
RETURN VIDEO
IN
OUT
CN12
Y/C OUT
G/Y/Y OUT
B/B-Y OUT
R/R-Y/C OUT
CN14
CN5
CN16
ON
OFF
S1
TERM
JW1
JW2
R1
R2
R3
R4
CN1
CN2
CN3
CN4
CN6
CN7
CN8
CN9
CN10
DIP
LOT NO.
S3
MONITOR OUT
CN11
SYNC OUT
S2
TERM
IN
OUT
GENLOCK
VBS OUT1
VBS OUT2
CN13
JW3
SONY
CN-224

**CN-224** – COMPONENT SIDE –
1-625-594-12
CCU-M7 (J, UC)
CCU-M7P (EK)

CT-105 (1-625-589-12)

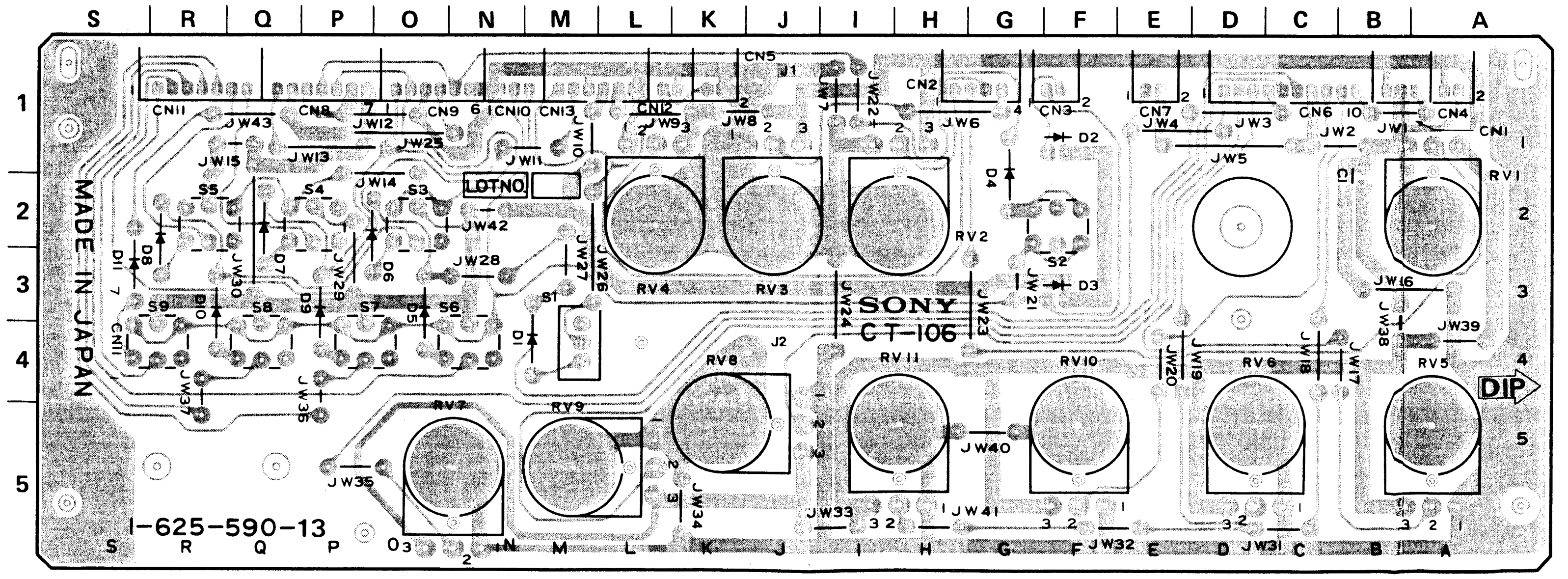
| | |
|---|---|
| CN1 | A - 1 |
| CN2 | A - 4 |
| CN3 | F - 2 |
| CN4 | E - 3 |
| CN5 | E - 2 |
| CN6 | E - 1 |
| CN7 | E - 1 |
| CN8 | A - 2 |
| CN9 | A - 2 |
| | |
| D1 | B - 2 |
| D2 | C - 3 |
| D3 | D - 4 |
| D4 | D - 3 |
| D5 | E - 4 |
| D6 | B - 3 |
| D7 | B - 3 |
| D8 | B - 2 |
| D9 | C - 2 |
| D10 | D - 2 |
| D11 | E - 2 |
| D12 | C - 1 |
| D13 | D - 1 |
| D14 | E - 1 |
| D15 | C - 3 |
| D16 | D - 3 |
| D17 | E - 3 |
| D18 | A - 1 |
| | |
| RV1 | A - 3 |
| | |
| S1 | A - 2 |
| S2 | B - 1 |
| S3 | C - 4 |
| S4 | D - 4 |
| S5 | B - 4 |
| S6 | B - 3 |
| S7 | C - 2 |
| S8 | D - 2 |
| S9 | E - 2 |
| S10 | C - 1 |
| S11 | D - 1 |
| S12 | E - 1 |
| S13 | C - 3 |
| S14 | D - 3 |
| S15 | E - 3 |
| S16 | A - 1 |


E
D
C
B
A
1
2
3
4
SONY CT-105
1-625-589-12
S12
S11
S10
S16
S2
S5
S8
S7
S1
S6
S13
S14
S15
S3
S4
S5
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
RV1
CN1
CN2
CN4
CN5
CN6
CN7
CN8
CN9
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
JK-6

**CT-105** – SOLDER SIDE –
1-625-589-12
CCU-M7 (J, UC)
CCU-M7P (EK)

CT-106 (1-625-590-13)

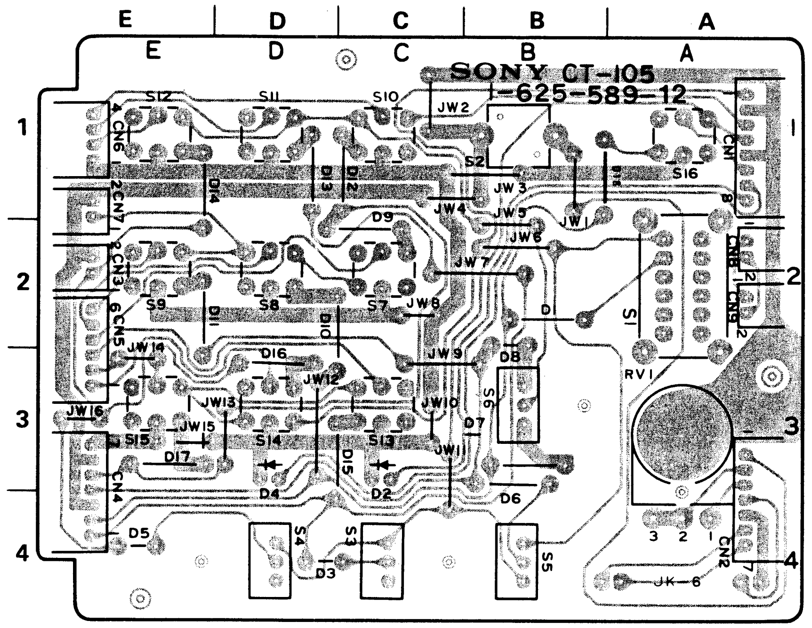
| | |
|---|---|
| CN1 | B - 1 |
| CN2 | G - 1 |
| CN3 | F - 1 |
| CN4 | A - 1 |
| CN5 | K - 1 |
| CN6 | C - 1 |
| CN7 | E - 1 |
| CN8 | P - 1 |
| CN9 | O - 1 |
| CN10 | N - 1 |
| CN11 | R - 1 |
| CN12 | L - 1 |
| CN13 | M - 1 |
| | |
| D1 | M - 4 |
| D2 | F - 1 |
| D3 | F - 3 |
| D4 | G - 1 |
| D5 | O - 3 |
| D6 | P - 2 |
| D7 | Q - 2 |
| D8 | R - 2 |
| D9 | P - 3 |
| D10 | R - 3 |
| D11 | S - 3 |
| | |
| RV1 | A - 2 |
| RV2 | H - 2 |
| RV3 | J - 2 |
| RV4 | L - 3 |
| RV5 | A - 5 |
| RV6 | D - 5 |
| RV7 | N - 5 |
| RV8 | K - 5 |
| RV9 | M - 5 |
| RV10 | F - 5 |
| RV11 | H - 5 |
| | |
| S1 | M - 4 |
| S2 | F - 2 |
| S3 | O - 2 |
| S4 | P - 2 |
| S5 | R - 2 |
| S6 | N - 4 |
| S7 | P - 4 |
| S8 | Q - 4 |
| S9 | R - 4 |


S
R
Q
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
MADE IN JAPAN
1-625-590-13
SONY
CT-106
LOT NO.
DIP
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
CN12
CN13
RV1
RV2
RV3
RV4
RV5
RV6
RV7
RV8
RV9
RV10
RV11
S1
S2
S3
S4
S5
S6
S7
S8
S9
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
J1
J2
JW1
JW2
JW3
JW4
JW5
JW6
JW8
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
JW17
JW18
JW19
JW20
JW21
JW22
JW23
JW24
JW25
JW26
JW27
JW28
JW29
JW30
JW31
JW32
JW33
JW34
JW35
JW36
JW37
JW38
JW39
JW40
JW41
JW42
JW43

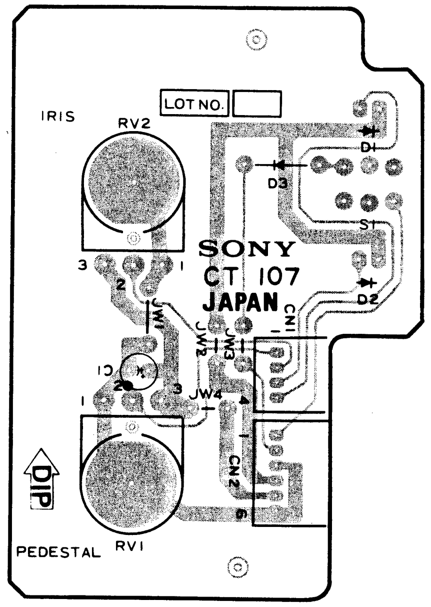
**CT-106** – SOLDER SIDE –
1-625-590-13
CCU-M7 (J, UC)
CCU-M7P (EK)

CT-105 (1-625-589-12)

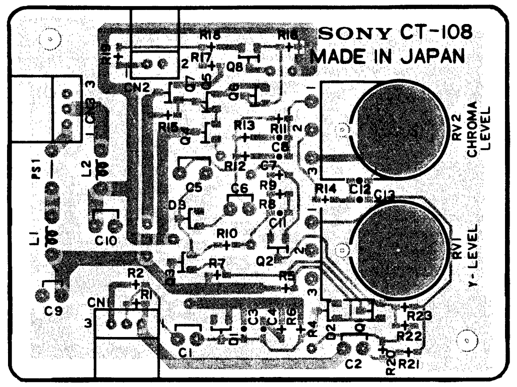
| | |
|---|---|
| CN1 | A - 1 |
| CN2 | A - 4 |
| CN3 | F - 2 |
| CN4 | E - 3 |
| CN5 | E - 2 |
| CN6 | E - 1 |
| CN7 | E - 1 |
| CN8 | A - 2 |
| CN9 | A - 2 |
| D1 | B - 2 |
| D2 | C - 3 |
| D3 | D - 4 |
| D4 | D - 3 |
| D5 | E - 4 |
| D6 | B - 3 |
| D7 | B - 3 |
| D8 | B - 2 |
| D9 | C - 2 |
| D10 | D - 2 |
| D11 | E - 2 |
| D12 | C - 1 |
| D13 | D - 1 |
| D14 | E - 1 |
| D15 | C - 3 |
| D16 | D - 3 |
| D17 | E - 3 |
| D18 | A - 1 |
| RV1 | A - 3 |
| S1 | A - 2 |
| S2 | B - 1 |
| S3 | C - 4 |
| S4 | D - 4 |
| S5 | B - 4 |
| S6 | B - 3 |
| S7 | C - 2 |
| S8 | D - 2 |
| S9 | E - 2 |
| S10 | C - 1 |
| S11 | D - 1 |
| S12 | E - 1 |
| S13 | C - 3 |
| S14 | D - 3 |
| S15 | E - 3 |
| S16 | A - 1 |


E
D
C
B
A
1
2
3
4
SONY CT-105
1-625-589-12
CN1
CN2
CN4
CN5
CN6
CN7
CN8
CN9
S1
S16
RV1
JK-6

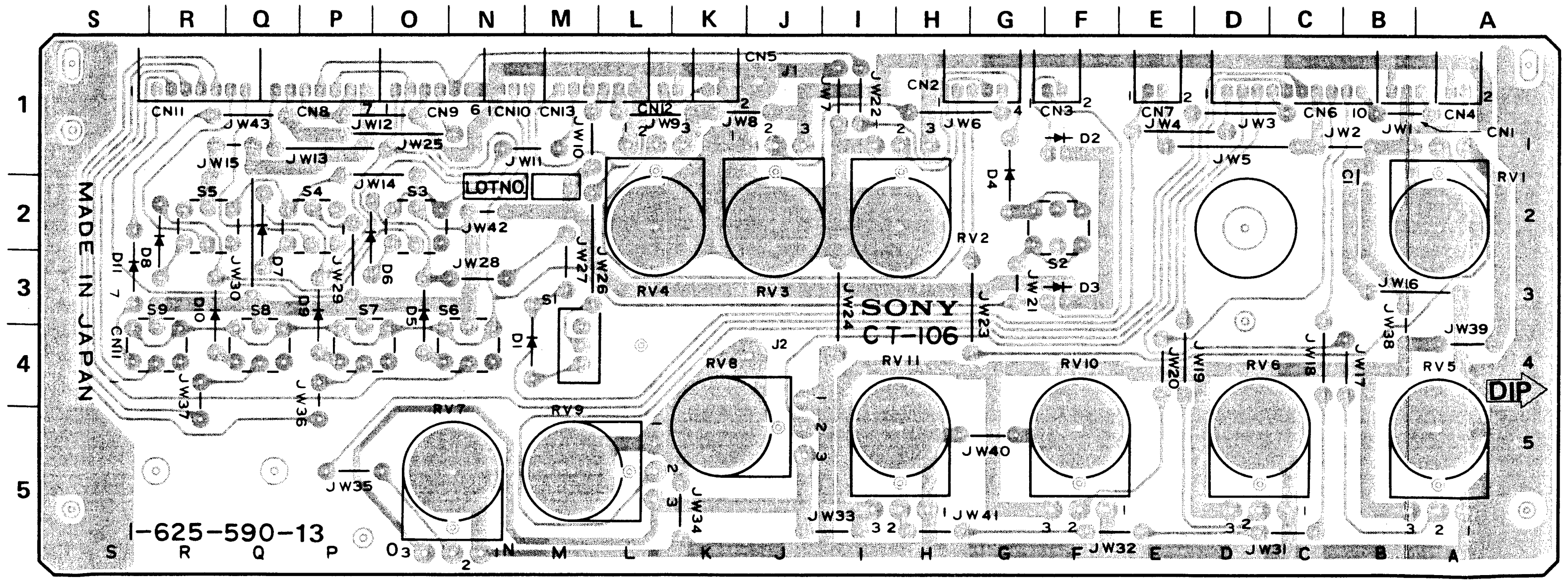
**CT-105** – SOLDER SIDE –
1-625-589-12
CCU-M7 (J, UC)
CCU-M7P (EK)


IRIS
RV2
LOT NO.
SONY
CT 107
JAPAN
DIP
PEDESTAL
RV1
S1
CN1
CN2
D1
D2
D3

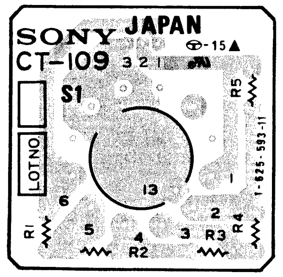
**CT-107** –SOLDER SIDE –
1-598-678-11
CCU-M7 (J, UC)
CCU-M7P (EK)


SONY CT-108
MADE IN JAPAN
RV2
CHROMA LEVEL
RV1
Y-LEVEL
CN1
CN2
C9
C10
C1
C2

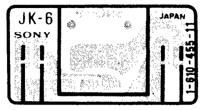
**CT-108** – SOLDER SIDE –
1-625-592-11, 12
CCU-M7 (J, UC)
CCU-M7P (EK)


S
R
Q
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
MADE IN JAPAN
SONY
CT-106
1-625-590-13
LOTNO.
DIP
RV1
RV2
RV3
RV4
RV5
RV6
RV7
RV8
RV9
RV10
RV11

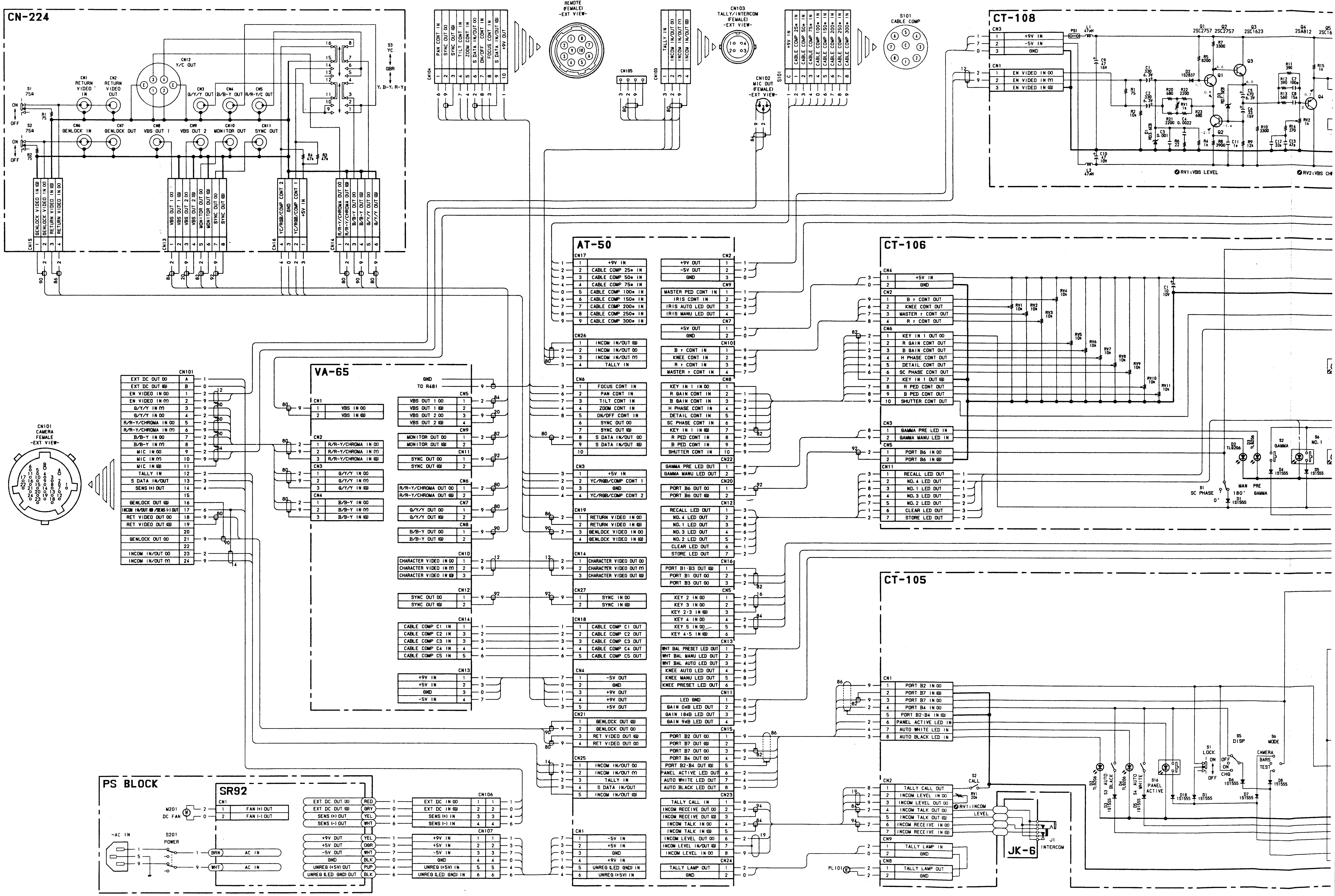
**CT-106** – SOLDER SIDE –
1-625-590-13
CCU-M7 (J, UC)
CCU-M7P (EK)

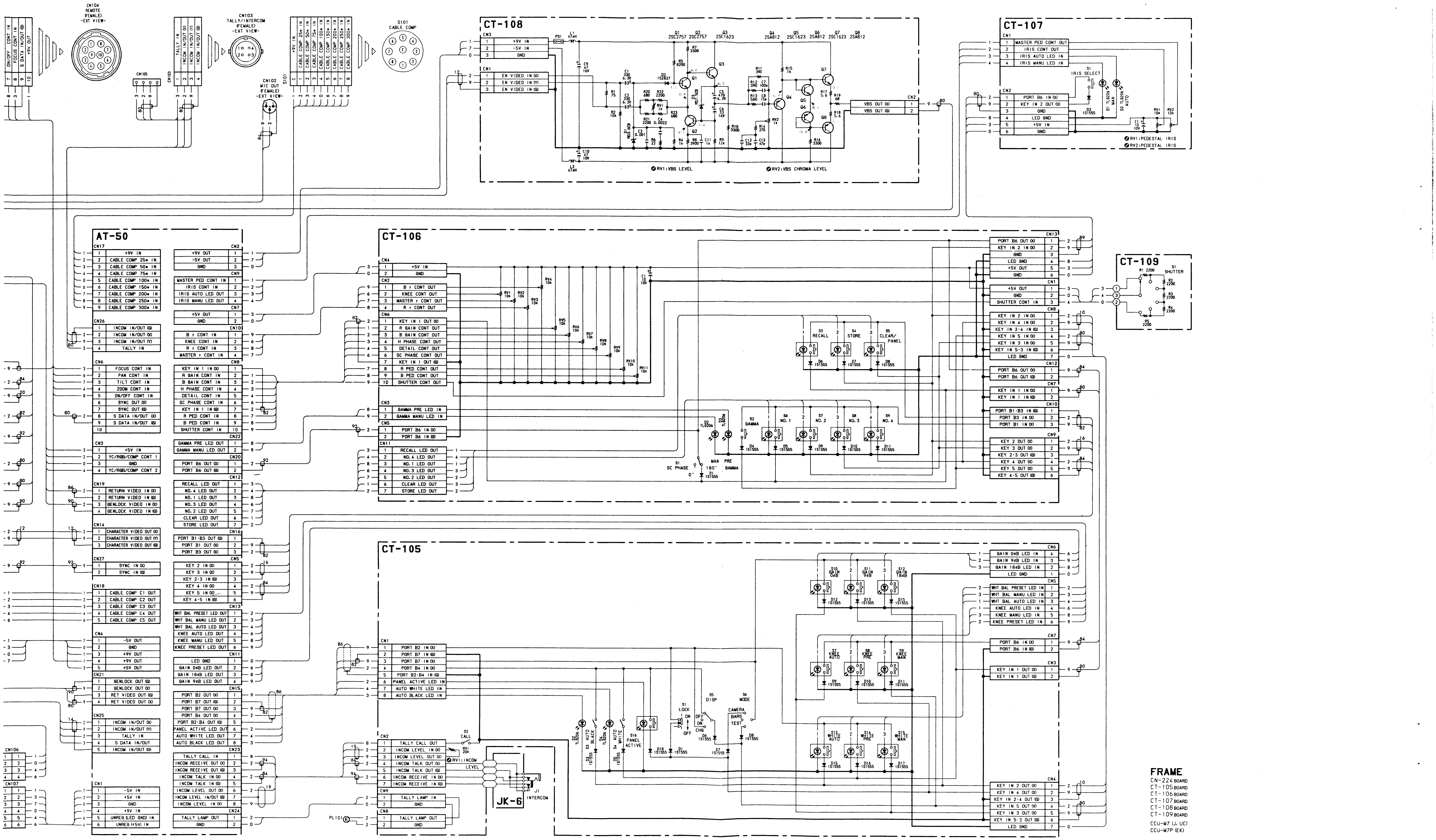

SONY JAPAN
CT-109
S1
LOTNO.
-15▲
1-625-593-11
R1
R2
R3
R4
R5

**CT-109** – COMPONENT SIDE –
1-625-593-11
CCU-M7 (J, UC)
CCU-M7P (EK)


JK-6
SONY
JAPAN
1-610-455-11

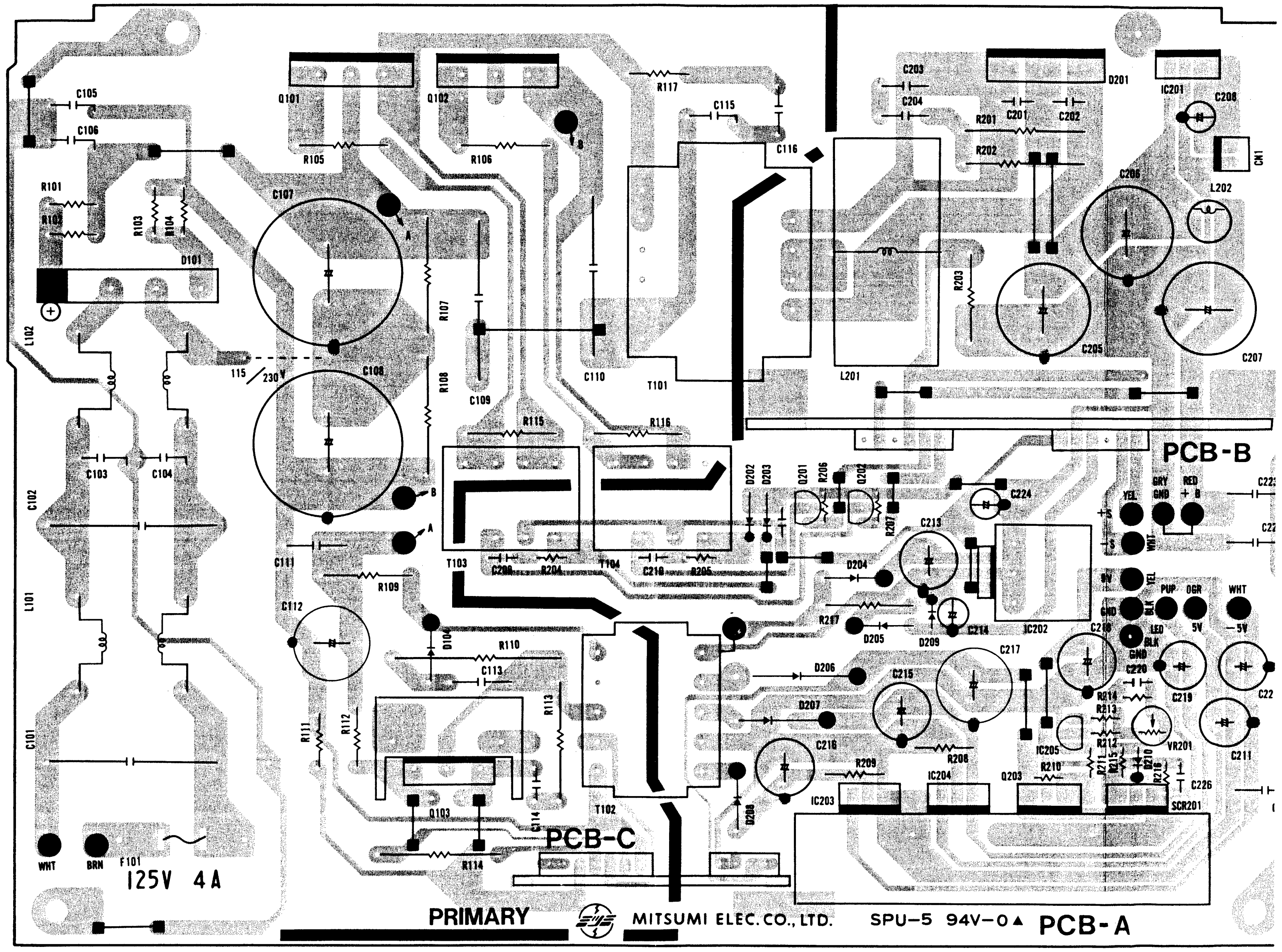
**JK-6** – COMPONENT SIDE –
1-610-455-11
CCU-M7 (J, UC)
CCU-M7P (EK)


CN-224
CN12 Y/C OUT
CN1 RETURN VIDEO IN
CN2 RETURN VIDEO OUT
CN3 G/Y/C OUT
CN4 B/B-Y OUT
CN5 R/R-Y/C OUT
CN6 GENLOCK IN
CN7 GENLOCK OUT
CN8 VBS OUT 1
CN9 VBS OUT 2
CN10 MONITOR OUT
CN11 SYNC OUT
S3 YC GBR
Y, B-Y, R-Y
CN15
CN13
CN16
CN14
CN104 REMOTE (FEMALE) -EXT VIEW-
CN103 TALLY/INTERCOM (FEMALE) -EXT VIEW-
CN105
CN102 MIC OUT (FEMALE) -EXT VIEW-
S101 CABLE COMP
CT-108
RV1:VBS LEVEL
RV2:VBS CHROMA
AT-50
VA-65
CN101 CAMERA FEMALE -EXT VIEW-
CT-106
S1 SC PHASE
S2 GAMMA
CT-105
S1 LOCK
S2 CALL
S3 AUTO BLACK
S4 AUTO WHITE
S5 DISP
S6 MODE
S16 PANEL ACTIVE
RV1:INCOM LEVEL
JK-6
J1 INTERCOM
PL101
PS BLOCK
SR92
M201 DC FAN
S201 POWER
~AC IN
CN106
CN107

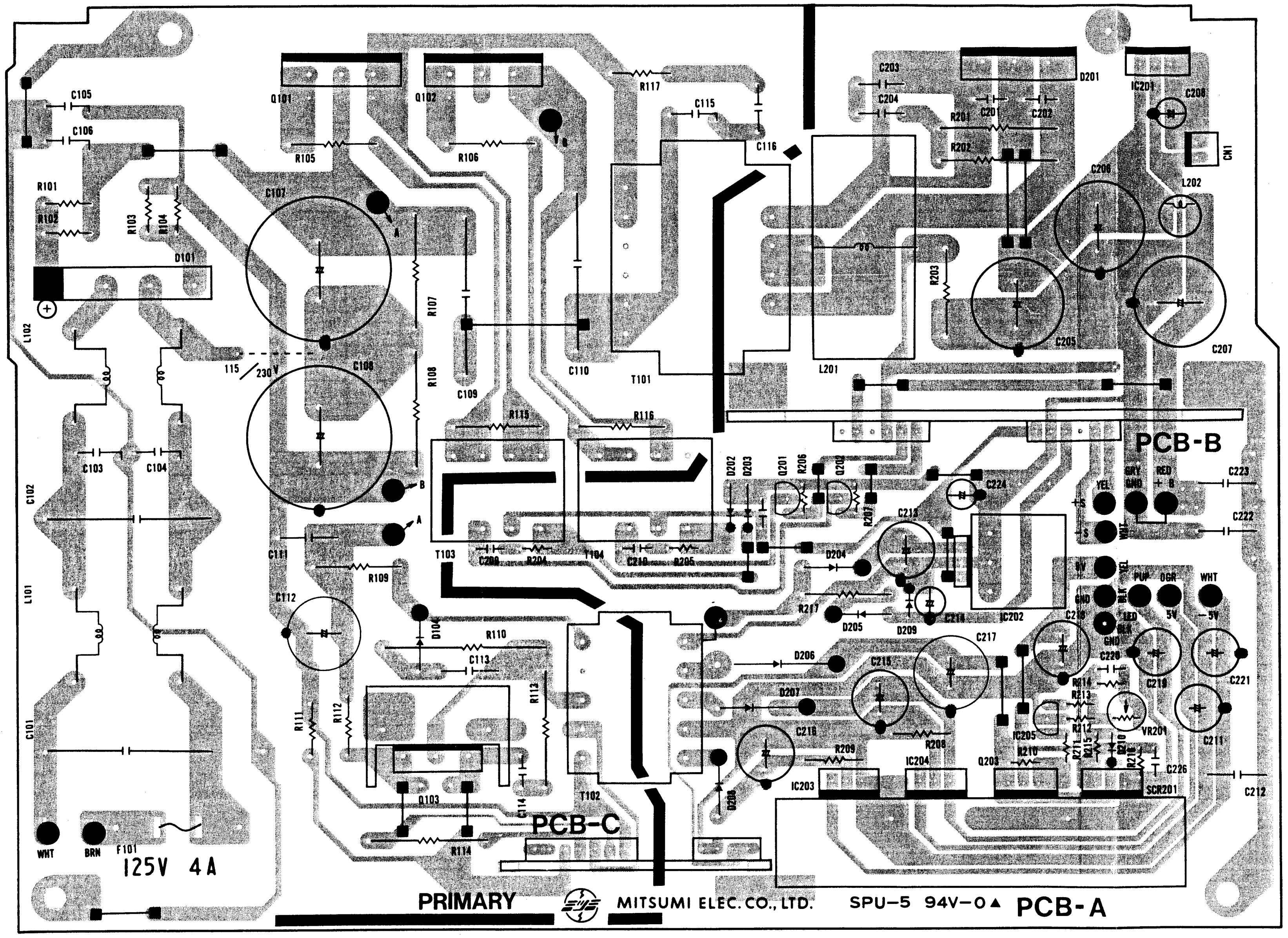

CN104 REMOTE (FEMALE) -EXT VIEW-
CN103 TALLY/INTERCOM (FEMALE) -EXT VIEW-
CN102 MIC OUT (FEMALE) -EXT VIEW-
S101 CABLE COMP
CN105
CT-108
CT-107
CT-109
AT-50
CT-106
CT-105
JK-6
J1 INTERCOM
PL101
RV1:VBS LEVEL
RV2:VBS CHROMA LEVEL
RV1:PEDESTAL IRIS
RV2:PEDESTAL IRIS
S1 IRIS SELECT
S1 SHUTTER
S1 SC PHASE
S2 GAMMA
S3 RECALL
S4 STORE
S5 CLEAR/PANEL
S6 NO.1
S7 NO.2
S8 NO.3
S9 NO.4
S10 GAIN 0dB
S11 GAIN 9dB
S12 GAIN 18dB
S7 KNEE AUTO
S8 KNEE PRE
S9 KNEE MAN
S13 WHITE AUTO
S14 WHITE PRE
S15 WHITE MAN
S1 LOCK
S2 CALL
S3 AUTO BLACK
S4 AUTO WHITE
S5 DISP
S6 MODE
S16 PANEL ACTIVE
RV1:INCOM LEVEL

FRAME
CN-224 BOARD
CT-105 BOARD
CT-106 BOARD
CT-107 BOARD
CT-108 BOARD
CT-109 BOARD
CCU-M7 (J, UC)
CCU-M7P (EK)

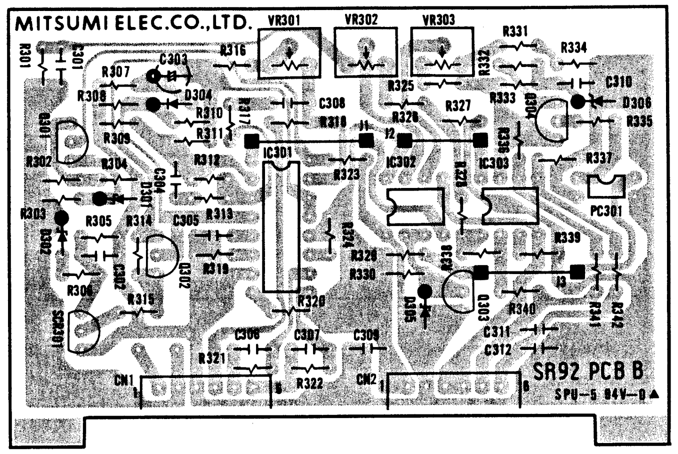
# PS BLOCK (POWER SUPPLY)
## SR92-A BOARD
## SR92-B BOARD
## SR92-C BOARD


PCB-A
PCB-B
PCB-C
PRIMARY
MITSUMI ELEC. CO., LTD.
SPU-5 94V-0▲
125V 4A
F101
WHT
BRN
115
230V
T101
T102
T103
T104
L101
L102
L201
L202
Q101
Q102
Q103
D101
D201
IC201
IC202
IC203
IC204
IC205
SCR201
VR201
CN1
YEL
GRY
RED
WHT
BLK
PUP
OGR
GND
5V
-5V

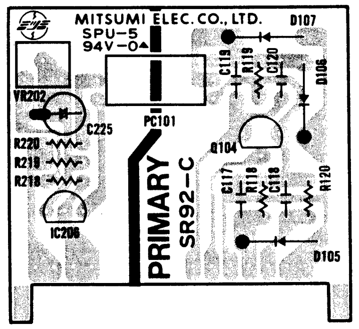
**SR92-A** – COMPONENT SI
CCU-M7 (J, UC)
CCU-M7P (EK)


PCB-B
PCB-C
125V 4A
F101
WHT
BRN
PRIMARY
MITSUMI ELEC. CO., LTD.
SPU-5 94V-0▲
PCB-A

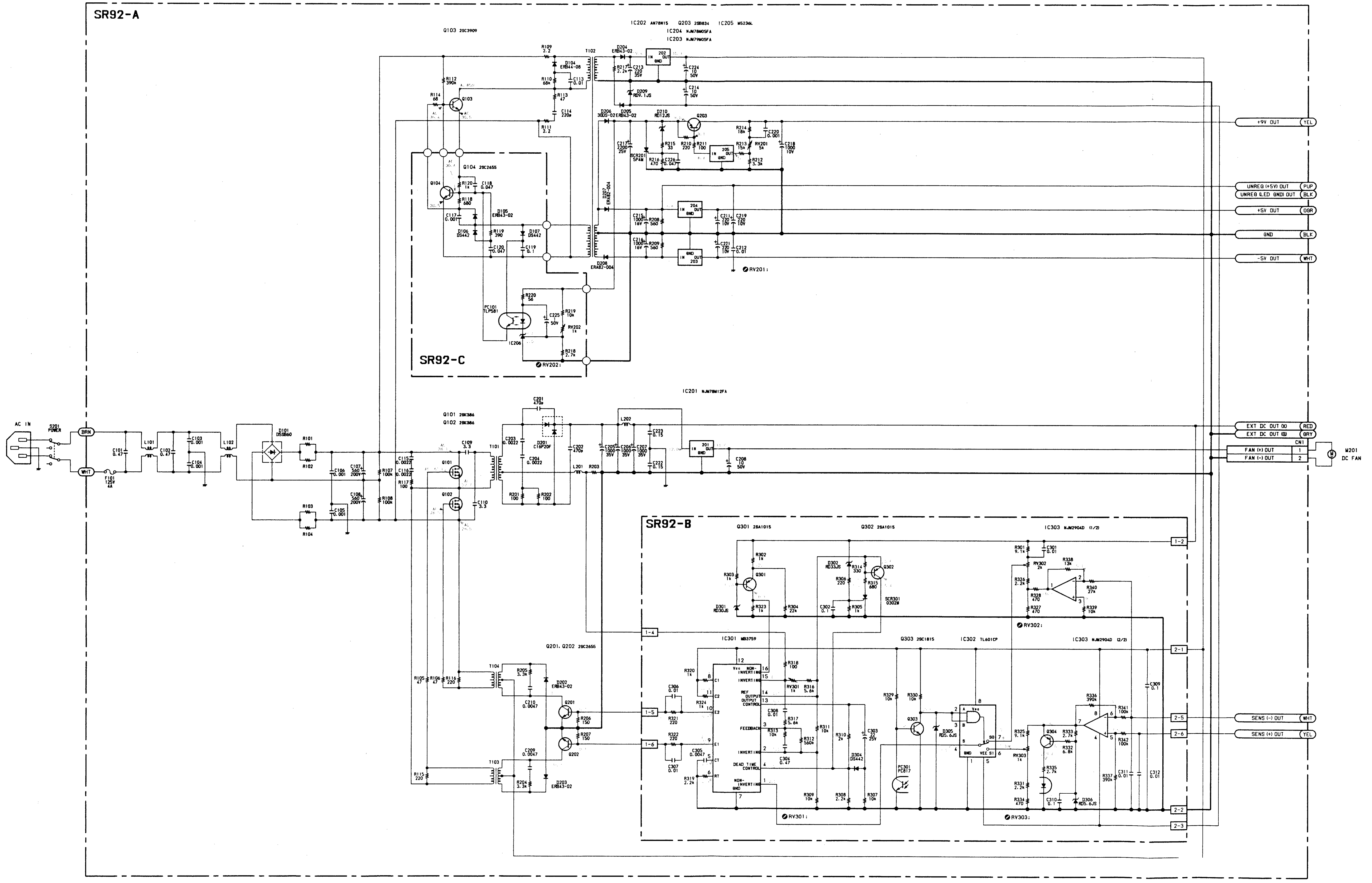
**SR92-A** – COMPONENT SIDE –
CCU-M7 (J, UC)
CCU-M7P (EK)


MITSUMI ELEC.CO.,LTD.
VR301
VR302
VR303
SR92 PCB B
SPU-5 94V-0▲

**SR92-B** – COMPONENT SIDE –
CCU-M7 (J, UC)
CCU-M7P (EK)


MITSUMI ELEC. CO., LTD.
SPU-5
94V-0▲
PRIMARY
SR92-C

**SR92-C** – COMPONENT SIDE –
CCU-M7 (J, UC)
CCU-M7P (EK)


SR92-A
SR92-B
SR92-C
AC IN
S201 POWER
BRN
WHT
F101 125V 4A
D101 DS8B60
Q101 2SK386
Q102 2SK386
Q103 2SC3909
Q104 2SC2655
T101
T102
T103
T104
PC101 TLP581
IC206
IC201 NJM78M12FA
IC202 AN78N15
Q203 2SB834
IC205 M5236L
IC204 NJM78M05FA
IC203 NJM79M05FA
Q201, Q202 2SC2655
Q301 2SA1015
Q302 2SA1015
Q303 2SC1815
IC301 MB3759
IC302 TL601CP
IC303 NJM2904D (1/2)
IC303 NJM2904D (2/2)
PC301 PC817
RV201
RV202
RV301
RV302
RV303
+9V OUT
YEL
UNREG (+5V) OUT
PUP
UNREG (LED GND) OUT
BLK
+5V OUT
OGR
GND
BLK
-5V OUT
WHT
EXT DC OUT (X)
RED
EXT DC OUT (G)
GRY
CN1
FAN (+) OUT
1
FAN (-) OUT
2
M201
DC FAN
SENS (-) OUT
WHT
SENS (+) OUT
YEL
1-2
1-4
1-5
1-6
2-1
2-2
2-3
2-5
2-6

# SECTION D
# SPARE PARTS

## D-1. PARTS INFORMATION

1. **Safety Related Component Warning**

   Components identified by shading marked with ! on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "**accommodating the improved parts and/or engineering changes**" or "**standardization of genuine parts.**" This manual's exploded view and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present." Regarding engineering parts and diagrams changes in our engineering department, refer SONY service bulletions and service manual supplements.

3. **The parts marked with "S" in the SP column** of the exploded views and electical spare parts list are nomally required for routine service work. Orders for parts marked with "O" will be processed, but allow for additional delivery time.

4. Item with no parts number and/or no description are not stocked because they are seldom required for routine service.

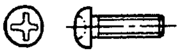
5. **Abbreviation**

| REF.No. | DESCRIPTION | REF.No. | DESCRIPTION | REF.No. | DESCRIPTION |
|---|---|---|---|---|---|
| C | CAPACITOR | IC | IC | RP | RESISTOR BLOCK |
| CN | CONNECTOR | J | JACK | RV | VARIABLE RESISTOR |
| CV | VARIABLE CAPACITOR | L | INDUCTOR | S | SWITCH |
| D | DIODE | LV | VARIABLE INDUCTOR | T | TRANSFORMER |
| DL | DELAY LINE | Q | TRANSISTOR | X | OSCILLATOR |
| FL | FILTER | R | RESISTOR | | |

All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

## D-2. SCREWS

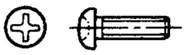
**+B**
**Bzn-N**



7-682-□□□-□□

| SIZE | Parts No. |
|---|---|
| 3 x 3 | 544-09 |
| x 4 | 545-09 |
| x 5 | 546-09 |
| x 6 | 547-09 |
| x 8 | 548-09 |
| x 10 | 549-09 |
| x 12 | 550-09 |
| x 14 | 551-09 |
| x 16 | 552-09 |
| x 20 | 553-09 |
| x 30 | 555-09 |
| 4 x 4 | 558-09 |
| x 5 | 559-09 |
| x 6 | 560-09 |
| x 8 | 561-09 |
| x 10 | 562-09 |
| x 12 | 563-09 |
| x 14 | 564-09 |
| x 16 | 565-09 |
| x 20 | 566-09 |
| 5 x 8 | 574-09 |
| x 10 | 575-09 |
| x 12 | 576-09 |
| x 14 | 577-09 |
| x 16 | 578-09 |
| x 20 | 579-09 |

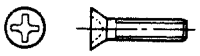
**+B**
**Cr-N**



7-682-□□□-□□

| SIZE | Parts No. |
|---|---|
| 3 x 3 | 544-04 |
| x 4 | 545-04 |
| x 5 | 546-04 |
| x 6 | 547-04 |
| x 8 | 548-04 |
| x 10 | 549-04 |
| x 12 | 550-04 |
| x 14 | 551-04 |
| x 16 | 552-04 |
| x 20 | 553-04 |
| 4 x 4 | 558-04 |
| x 5 | 559-04 |
| x 6 | 560-04 |
| x 8 | 561-04 |
| x 10 | 562-04 |
| x 12 | 563-04 |
| x 14 | 564-04 |
| x 16 | 565-04 |
| x 20 | 566-04 |
| 5 x 8 | 574-04 |
| x 10 | 575-04 |
| x 12 | 576-04 |
| x 14 | 577-04 |
| x 16 | 578-04 |
| x 20 | 579-04 |

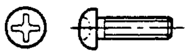
**+K**
**Bzn-N**



7-682-□□□-□□

| SIZE | Parts No. |
|---|---|
| 3 x 4 | 245-09 |
| x 5 | 246-09 |
| x 6 | 247-09 |
| x 8 | 248-09 |
| x 10 | 249-09 |
| x 12 | 250-09 |
| x 14 | 251-09 |
| x 16 | 252-09 |
| x 20 | 253-09 |
| 4 x 6 | 260-09 |
| x 8 | 261-09 |
| x 10 | 262-09 |
| x 12 | 263-09 |
| x 14 | 264-09 |
| x 16 | 265-09 |
| x 20 | 266-09 |
| 5 x 8 | 274-09 |
| x 10 | 275-09 |
| x 12 | 276-09 |
| x 14 | 277-09 |
| x 16 | 278-09 |
| x 20 | 279-09 |
| x 25 | 280-09 |
| x 30 | 281-09 |
| x 35 | 282-09 |
| x 40 | 283-09 |
| x 45 | 284-09 |
| x 50 | 285-09 |

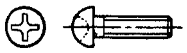
**+B**
**Cr-N**



7-621-□□□-□□

| SIZE | Parts No. |
|---|---|
| 2 x 3 | 772-08 |
| x 4 | 772-18 |
| x 5 | 771-06 |
| x 6 | 772-38 |
| x 8 | 772-48 |
| x 10 | 772-58 |
| x 12 | 772-68 |
| x 14 | 772-78 |
| x 16 | 772-88 |
| x 20 | – |
| 2.6 x 3 | 775-08 |
| x 4 | 773-86 |
| x 5 | 770-87 |
| x 6 | 770-67 |
| x 8 | 770-99 |
| x 10 | 773-87 |
| x 12 | 775-68 |
| x 14 | 775-78 |
| x 16 | 775-88 |
| x 20 | 773-91 |

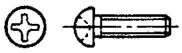
**PRECISION +P**
**Cr-N**



**7-627-□□□-□□**

| SIZE | Parts No. |
|---|---|
| 1.7 x 1.6 | – |
| x 1.8 | – |
| x 2 | 552-27 |
| x 2.2 | 552-87 |
| x 2.5 | 552-07 |
| x 2.8 | – |
| x 3 | 552-37 |
| x 3.5 | – |
| x 4 | 552-47 |
| x 4.5 | 552-67 |
| x 5 | 552-57 |
| x 5.5 | 557-07 |
| x 6 | 552-77 |
| 2 x 1.8 | 554-37 |
| x 2 | 553-17 |
| x 2.2 | 554-07 |
| x 2.5 | 553-27 |
| x 2.8 | – |
| x 3 | 553-37 |
| x 3.5 | 554-17 |
| x 4 | 553-47 |
| x 4.5 | 553-57 |
| x 5 | 553-67 |
| x 5.5 | – |
| x 6 | 554-27 |
| x 7 | 553-87 |
| x 8 | 553-97 |
| x 10 | 553-77 |
| 2.6 x 2.8 | 556-07 |
| x 3 | – |
| x 3.5 | – |
| x 4 | 556-37 |
| x 4.5 | – |
| x 5 | 556-57 |
| x 5.5 | – |
| x 6 | 556-77 |
| x 7 | – |
| x 8 | 556-97 |
| x 9 | – |
| x 10 | 557-47 |

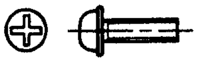
**+P**
**Czn-N**



**7-621-□□□-□□**

| SIZE | Parts No. |
|---|---|
| 2 x 3 | 255-15 |
| x 4 | 255-25 |
| x 5 | 255-35 |
| x 6 | 255-45 |
| x 8 | 255-55 |
| x 10 | 255-65 |
| x 12 | 255-75 |
| x 14 | 255-85 |
| x 16 | 256-05 |
| x 20 | 256-25 |
| 2.3 x 5 | 257-35 |
| x 6 | 257-45 |
| x 8 | 257-55 |
| x 10 | 257-65 |
| x 12 | 257-75 |
| x 14 | 257-85 |
| x 16 | 258-05 |
| x 20 | 258-25 |
| 2.6 x 3 | 259-15 |
| x 4 | 259-25 |
| x 5 | 259-35 |
| x 6 | 259-45 |
| x 8 | 259-55 |
| x 10 | 259-65 |
| x 12 | 259-75 |
| x 14 | 259-85 |
| x 16 | 260-05 |
| x 20 | 260-25 |

**+PWH**



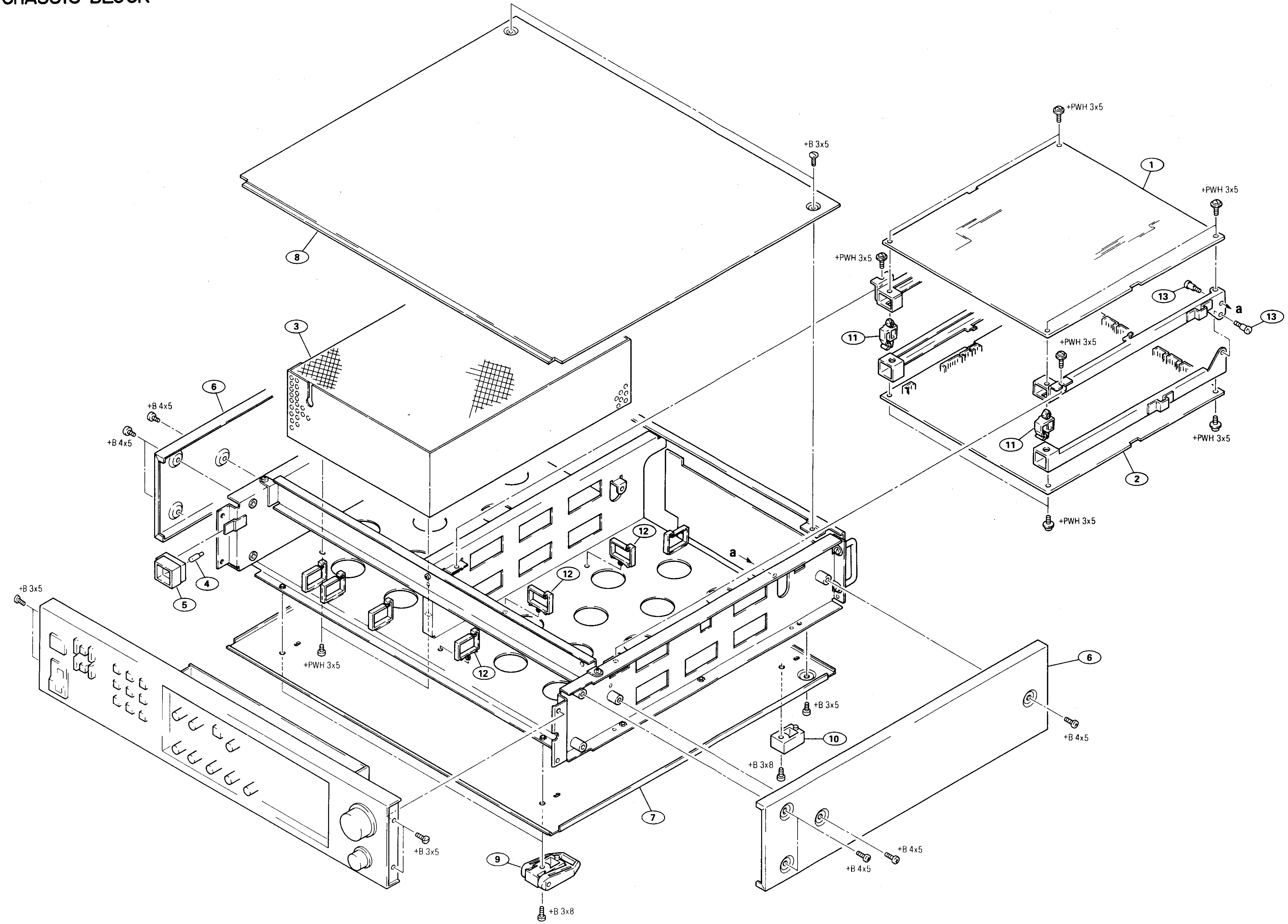
**7-682-□□□-□□**

| SIZE | Parts No. |
|---|---|
| 2.6 x 4 | |
| x 5 | 902-11 |
| x 6 | 902-21 |
| x 8 | 902-31 |
| x 10 | |
| x 12 | 902-51 |
| x 14 | |
| 3 x 5 | 903-01 |
| x 6 | 903-11 |
| x 8 | 903-21 |
| x 10 | 903-31 |
| x 12 | 903-41 |
| x 14 | |
| 4 x 6 | 904-01 |
| x 8 | 904-11 |
| x 10 | 904-21 |
| x 12 | 904-31 |
| x 14 | 904-41 |
| x 16 | |
| x 20 | |

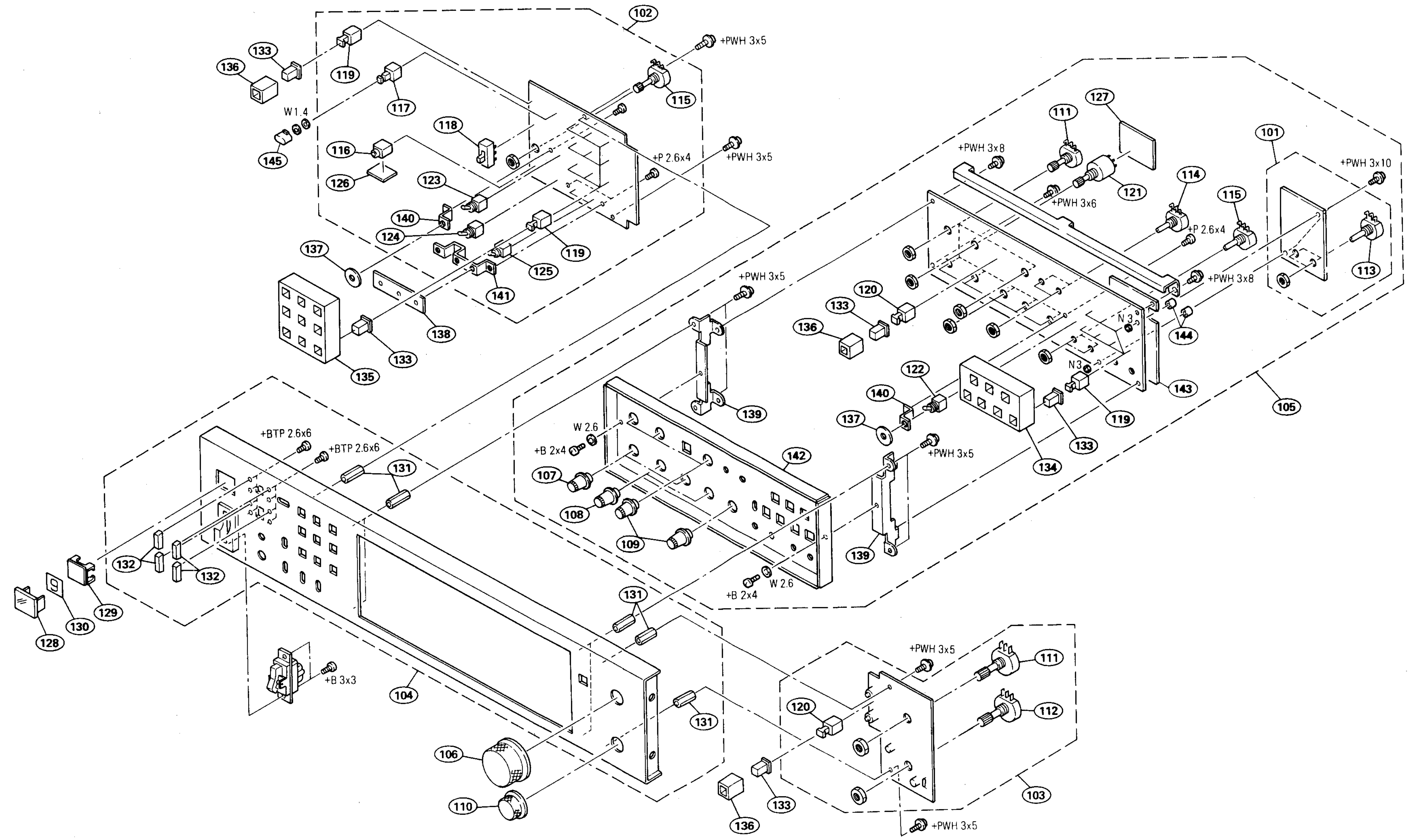
## CHASSIS BLOCK

| No. | Parts No. | SP | Description |
|---|---|---|---|
| 1 | A-7513-667-A | o | MOUNTED CIRCUIT BOARD "VA-65" |
| 2 | A-7513-668-A | o | MOUNTED CIRCUIT BOARD "AT-50" |
| 3 | 1-413-351-11 | s | PS BLOCK (UC) |
|  | 1-413-351-21 | s | PS BLOCK (EK) |
| 4 | 1-518-327-21 | s | LAMP, PILOT |
| 5 | 2-249-306-00 | o | HOLDER, LAMP |
| 6 | 2-381-949-01 | o | COVER, SIDE |
| 7 | 2-381-957-01 | o | COVER |
| 8 | 2-381-957-11 | o | COVER |
| 9 | 2-381-963-01 | o | FOOT, STAND |
| 10 | 2-381-964-01 | o | FOOT |
| 11 | 3-659-681-00 | o | HOLDER, PC BOARD |
| 12 | 3-695-074-01 | o | CLAMP, WIRE |
| 13 | 4-835-134-00 | s | SCREW, TD 3.8 x 2.5 |

# CHASSIS BLOCK


+PWH 3x5
+B 3x5
1
+PWH 3x5
8
+PWH 3x5
13
a
13
3
11
+PWH 3x5
6
+B 4x5
+B 4x5
11
+PWH 3x5
2
+PWH 3x5
12
a
12
4
5
+B 3x5
+PWH 3x5
12
6
+B 3x5
10
+B 4x5
+B 3x8
7
+B 3x5
+B 4x5
+B 4x5
9
+B 3x8

# FRONT PANEL


+PWH 3x5
W1.4
+P 2.6x4
+PWH 3x5
+PWH 3x8
+PWH 3x10
+PWH 3x6
+P 2.6x4
+PWH 3x8
+PWH 3x5
N3
N3
+PWH 3x5
W2.6
+B 2x4
+B 2x4
W2.6
+BTP 2.6x6
+BTP 2.6x6
+B 3x3
+PWH 3x5
+PWH 3x5

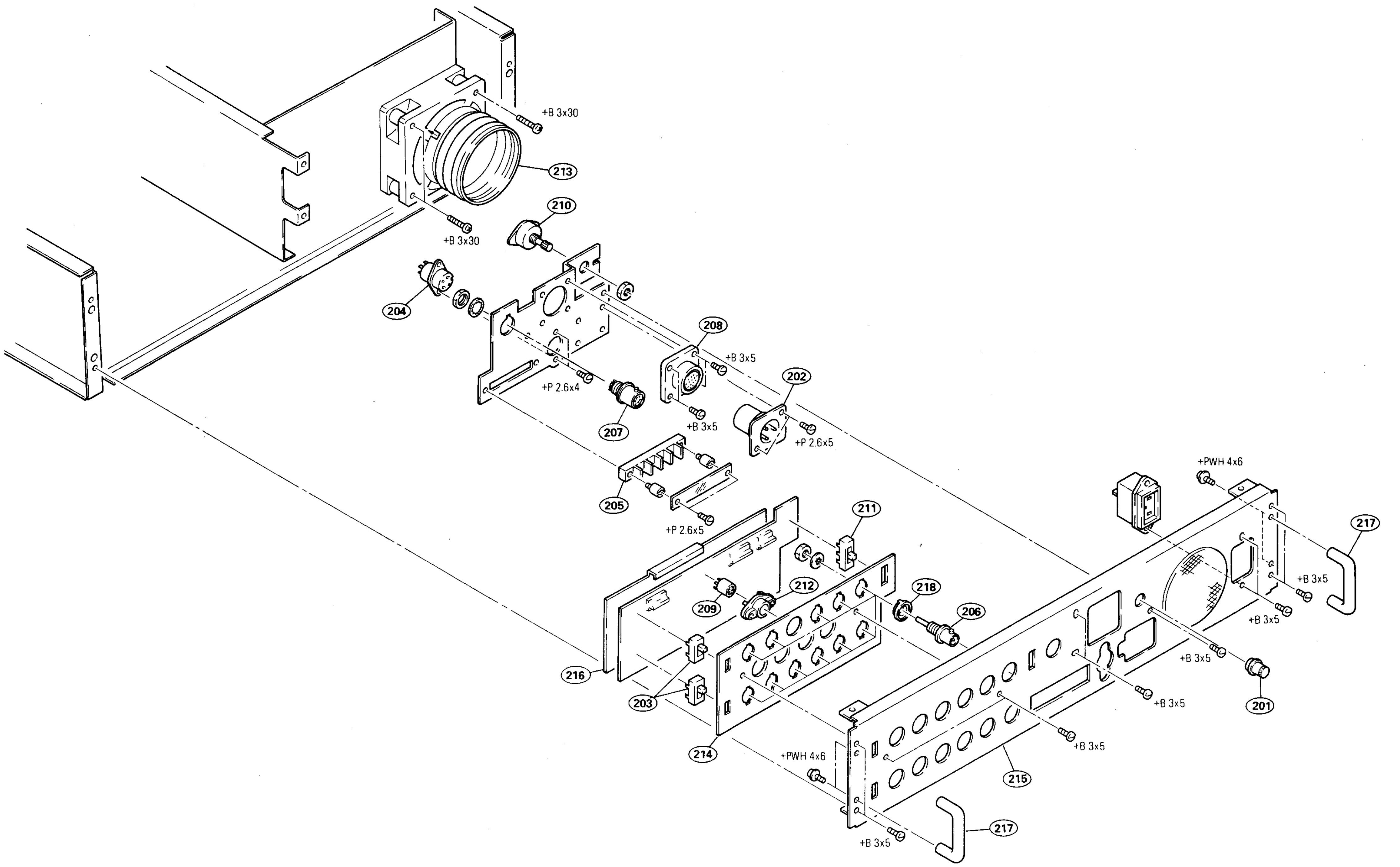
## FRONT PANEL

| No. | Parts No. | SP | Description |
|---|---|---|---|
| 101 | A-7513-664-A | o | MOUNTED CIRCUIT BOARD "CT-108" |
| 102 | A-7513-665-A | o | MOUNTED CIRCUIT BOARD "CT-105" |
| 103 | A-7513-666-A | o | MOUNTED CIRCUIT BOARD "CT-107" |
| 104 | A-7584-041-A | o | PANEL ASSY, FRONT |
| 105 | A-7615-216-A | o | CT-106 ASSY |
| 106 | X-2270-601-0 | s | KNOB ASSY "IRIS" |
| 107 | X-2381-905-0 | s | KNOB (R) ASSY, CONTROL "GAIN R" "PED R" |
| 108 | X-2381-906-0 | s | KNOB (B) ASSY, CONTROL "GAIN B" "PED B" |
| 109 | X-2279-508-1 | s | KNOB ASSY, VOLUME "KNEE" "SHUTTER" "MASTER" "DETAIL" |
| 110 | X-3651-342-0 | s | KNOB ASSY, CONTROL "MASTER PEDESTAL" |
| 111 | 1-238-102-11 | s | VAR, CARBON 10K "KNEE" "MASTER" "GAIN" "PED" "DETAIL" "IRIS" |
| 112 | 1-238-102-21 | s | VAR, CARBON 10K "MASTER PEDESTAL" |
| 113 | 1-238-103-11 | s | VAR, CARBON 1K "CABLE COMPE FINE Y/C" |
| 114 | 1-238-104-11 | s | VAR, CARBON 10K "B" "R" |
| 115 | 1-238-105-11 | s | VAR, CARBON 20K "INTERCOM" "SC" "H PHASE" |
| 116 | 1-507-883-00 | s | JACK 4P "INTERCOM" |
| 117 | 1-552-774-00 | s | SWITCH, PUSH "CALL" |
| 118 | 1-553-526-00 | s | SWITCH, SLIDE "LOCK ON/OFF" |
| 119 | 1-570-101-41 | s | SWITCH, KEYBOARD "REMOTE ON" "GAIN" "KNEE" "W/B BALANCE" "RECALL" "STOR" "DATA CLEAR" "FILE" |
| 120 | 1-570-969-11 | s | SWITCH, KEYBOARD "IRIS MANUAL/AUTO" "GAMMA" |
| 121 | 1-571-412-11 | s | SWITCH, ROTARY "SHUTTER" |
| 122 | 1-571-414-11 | s | SWITCH, TOGGLE "PHASE" |
| 123 | 1-571-415-11 | s | SWITCH, TOGGLE "MODE" |
| 124 | 1-571-416-11 | s | SWITCH, TOGGLE "DIPS" |
| 125 | 1-571-417-11 | s | SWITCH, TOGGLE "BLACK" "WHITE" |
| 126 | 1-610-455-00 | o | PRINTED CIRCUIT BOARD "JK-6" |
| 127 | 1-625-593-11 | o | PRINTED CIRCUIT BOARD "CT-109" |
| 128 | 2-249-303-00 | o | WINDOW (2), REMOTE CONTROL |
| 129 | 2-249-304-02 | o | FRAME (2), WINDOW, REMOTE CONTROL |
| 130 | 2-249-307-00 | s | INDICATOR, REMOTE |
| 131 | 2-280-622-41 | o | SUPPORT (M3), HEXAGON |
| 132 | 2-295-991-00 | o | GUARD, SWITCH |
| 133 | 2-381-934-01 | o | CAP, SWITCH |
| 134 | 2-381-937-01 | o | PACKING (A), LIGHT INTERCEPTION |
| 135 | 2-381-938-01 | o | PACKING (B), LIGHT INTERCEPTION |
| 136 | 2-381-939-01 | o | PACKING (C), LIGHT INTERCEPTION |
| 137 | 2-381-940-01 | o | COVER (S), TOGGLE SW |
| 138 | 2-381-941-01 | o | COVER (L), TOGGLE SW |
| 139 | 2-381-974-01 | o | BRACKET, VR |
| 140 | 2-381-944-01 | o | GUIDE (S), SWITCH |
| 141 | 2-381-945-01 | o | GUIDE (L), SWITCH |
| 142 | 2-381-948-02 | o | PANEL, OPERATION |
| 143 | 2-381-970-01 | o | SHEET, INSULATING |
| 144 | 3-654-658-00 | o | SPACER |
| 145 | 4-335-304-00 | s | BUTTON, TUNING |

## REAR PANEL

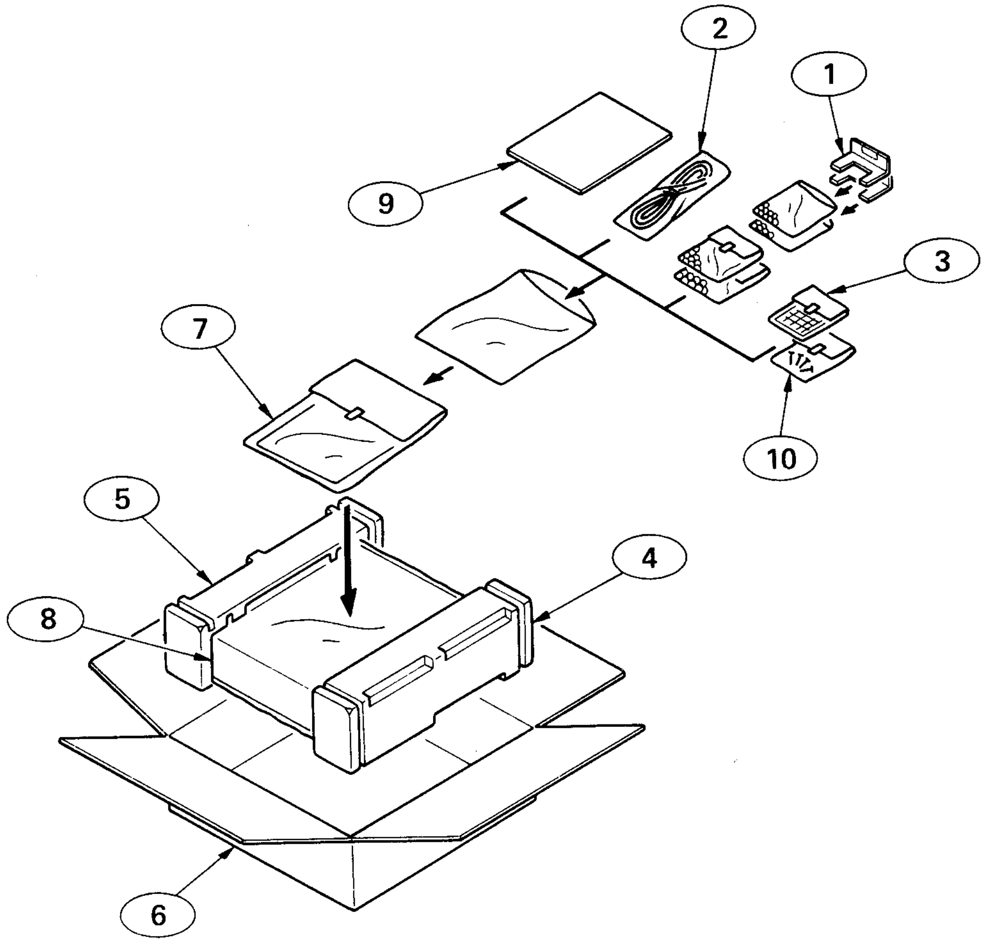
| No. | Parts No. | SP | Description |
|---|---|---|---|
| 201 | X-3683-504-0 | s | KNOB ASSY, CONTROL |
| 202 | 1-509-176-51 | s | RECEPTACLE, XLR 3P "MIC OUT" |
| 203 | 1-516-576-00 | s | SWITCH, SLIDE |
| 204 | 1-526-531-00 | s | SOCKET, DIN 4P "TALLY/INTERCOM" |
| 205 | 1-537-047-11 | o | TERMINAL BOARD, FEED THROUGH |
| 206 | 1-561-336-00 | s | RECEPTACLE, BNC |
| 207 | 1-562-782-21 | s | RECEPTACLE, 10P |
| 208 | 1-562-245-00 | o | RECEPTACLE, 26P "CAMERA" |
| 209 | 1-565-301-11 | s | SOCKET, TCS 7649 |
| 210 | 1-571-411-11 | s | SWITCH, ROTARY "CABLE COMP" |
| 211 | 1-571-413-11 | s | SWITCH, SLIDE |
| 212 | 2-381-936-01 | o | GUIDE, SOCKET |
| 213 | 2-381-947-01 | o | GUIDE, FUN |
| 214 | 2-381-950-01 | o | BRACKET, BNC |
| 215 | 2-381-956-02 | o | PANEL, REAR |
| 216 | 2-381-971-01 | o | SHEET, INSULATING |
| 217 | 3-648-409-00 | o | HANDLE, (1) |
| 218 | 3-654-545-00 | s | SPACER, BNC |

# REAR PANEL


+B 3x30
213
210
+B 3x30
204
208
+B 3x5
202
+P 2.6x4
+B 3x5
207
+P 2.6x5
205
+P 2.6x5
+PWH 4x6
217
211
212
218
206
209
+B 3x5
+B 3x5
+B 3x5
216
+B 3x5
203
201
+B 3x5
214
+PWH 4x6
215
217
+B 3x5

## D-3. PACKING MATERIAL & ACCESSORIES (SUPPLIED)

| No. | Parts No. | SP | Description |
|---|---|---|---|
| 1 | X-2381-908-1 | o | ANGLE ASSY (INST), RACK |
| | 7-682-275-09 | s | SCREW +K 5x10 2PCS |
| ⚠2 | 1-551-812-00 | s | CORD, POWER (UC) |
| | 1-556-760-11 | s | CORD, POWER (3 CORE) (EK) |
| | 3-701-629-00 | s | BAG, POLY |
| 3 | 2-249-307-00 | s | INDICATOR, REMOTE |
| | 3-701-619-00 | s | BAG, POLY |
| 4 | 2-381-966-01 | o | CUSHION, FRONT |
| 5 | 2-381-967-01 | o | CUSHION, REAR |
| 6 | 2-381-969-01 | o | CARTON, INDIVIDUAL |
| 7 | 3-701-630-00 | s | BAG, POLY (FOR MANUAL) |
| 8 | 3-701-640-00 | s | BAG, POLY (FOR CCU-M7/M7P) |
| ⚠9 | 3-769-834-11 | s | MANUAL, INSTRUCTION (EK) |
| | 3-769-834-22 | s | MANUAL, INSTRUCTION (UC) |
| 10 | 7-682-564-04 | s | SCREW +B 4x14 |
| | 3-701-619-00 | s | BAG, POLY |



## D-4. ELECTRICAL PARTS LIST

Parts that are not listed in the "reference numbers order list" are shown in following list reference are omitted.

**CAPACITOR, ELECTROLYTIC**

| Part No. | SP | Description |
|---|---|---|
| 1-124-463-11 | s | CAP, ELECT 0.1 20% 50V |
| 1-124-464-11 | s | CAP, ELECT 0.22 20% 50V |
| 1-124-252-11 | s | CAP, ELECT 0.33 20% 50V |
| 1-124-465-21 | s | CAP, ELECT 0.47 20% 50V |
| 1-124-438-11 | s | CAP, ELECT 1.0 20% 50V |
| 1-124-257-11 | s | CAP, ELECT 2.2 20% 50V |
| 1-124-258-11 | s | CAP, ELECT 3.3 20% 50V |
| 1-124-245-11 | s | CAP, ELECT 4.7 20% 35V |
| 1-124-259-11 | s | CAP, ELECT 4.7 20% 50V |
| 1-124-462-11 | s | CAP, ELECT 10 20% 16V |
| 1-124-247-11 | s | CAP, ELECT 10 20% 35V |
| 1-124-261-11 | s | CAP, ELECT 10 20% 50V |
| 1-124-222-11 | s | CAP, ELECT 22 20% 6.3V |
| 1-124-234-11 | s | CAP, ELECT 22 20% 16V |
| 1-124-248-11 | s | CAP, ELECT 22 20% 35V |
| 1-124-431-11 | s | CAP, ELECT 33 20% 4V |
| 1-124-229-11 | s | CAP, ELECT 33 20% 10V |
| 1-124-242-11 | s | CAP, ELECT 33 20% 25V |
| 1-124-224-11 | s | CAP, ELECT 47 20% 6.3V |
| 1-124-236-11 | s | CAP, ELECT 47 20% 16V |
| 1-124-584-11 | s | CAP, ELECT 100 20% 10V |

## CAPACITOR, CHIP CERAMIC

| Part No. | SP | Description |
|---|---|---|
| 1-163-083-00 | s | CAP, CHIP CERAMIC 1pF ±0.25pF 50V |
| 1-163-085-00 | s | CAP, CHIP CERAMIC 2pF ±0.25pF 50V |
| 1-163-087-00 | s | CAP, CHIP CERAMIC 4pF ±0.25pF 50V |
| 1-163-089-00 | s | CAP, CHIP CERAMIC 6pF ±0.5pF 50V |
| 1-163-091-00 | s | CAP, CHIP CERAMIC 8pF ±0.5pF 50V |
| 1-163-093-00 | s | CAP, CHIP CERAMIC 10pF 5% 50V |
| 1-163-097-00 | s | CAP, CHIP CERAMIC 15pF 5% 50V |
| 1-163-101-00 | s | CAP, CHIP CERAMIC 22pF 5% 50V |
| 1-163-105-00 | s | CAP, CHIP CERAMIC 33pF 5% 50V |
| 1-163-109-00 | s | CAP, CHIP CERAMIC 47pF 5% 50V |
| 1-163-113-00 | s | CAP, CHIP CERAMIC 68pF 5% 50V |
| 1-163-117-00 | s | CAP, CHIP CERAMIC 100pF 5% 50V |
| 1-163-121-00 | s | CAP, CHIP CERAMIC 150pF 5% 50V |
| 1-163-125-00 | s | CAP, CHIP CERAMIC 220pF 5% 50V |
| 1-163-129-00 | s | CAP, CHIP CERAMIC 330pF 5% 50V |
| 1-163-133-00 | s | CAP, CHIP CERAMIC 470pF 5% 50V |
| 1-163-137-00 | s | CAP, CHIP CERAMIC 680pF 5% 50V |
| 1-163-141-00 | s | CAP, CHIP CERAMIC 1000pF 5% 50V |
| 1-163-145-00 | s | CAP, CHIP CERAMIC 1500pF 10% 50V |
| 1-163-013-00 | s | CAP, CHIP CERAMIC 2200pF 10% 50V |
| 1-163-015-00 | s | CAP, CHIP CERAMIC 3300pF 10% 50V |
| 1-163-017-00 | s | CAP, CHIP CERAMIC 4700pF 10% 50V |
| 1-163-019-00 | s | CAP, CHIP CERAMIC 6800pF 10% 50V |
| 1-163-021-00 | s | CAP, CHIP CERAMIC 0.01 10% 50V |
| 1-163-023-00 | s | CAP, CHIP CERAMIC 0.015 10% 50V |
| 1-163-034-00 | s | CAP, CHIP CERAMIC 0.033 50V |
| 1-163-035-00 | s | CAP, CHIP CERAMIC 0.047 50V |
| 1-163-036-00 | s | CAP, CHIP CERAMIC 0.068 50V |
| 1-163-038-00 | s | CAP, CHIP CERAMIC 0.1 50V |

**RESISTOR, CHIP**

| Part No. | SP | Description |
|---|---|---|
| 1-216-295-00 | s | RES, CHIP 0 5% 1/10W |
| 1-216-298-00 | s | RES, CHIP 2.2 5% 1/10W |
| 1-216-302-00 | s | RES, CHIP 2.7 5% 1/10W |
| 1-216-304-00 | s | RES, CHIP 3.3 5% 1/10W |
| 1-216-306-00 | s | RES, CHIP 3.9 5% 1/10W |
| 1-216-308-00 | s | RES, CHIP 4.7 5% 1/10W |
| 1-216-309-00 | s | RES, CHIP 5.6 5% 1/10W |
| 1-216-311-00 | s | RES, CHIP 6.8 5% 1/10W |
| 1-216-313-00 | s | RES, CHIP 8.2 5% 1/10W |
| 1-216-001-00 | s | RES, CHIP 10 5% 1/10W |
| 1-216-003-00 | s | RES, CHIP 12 5% 1/10W |
| 1-216-005-00 | s | RES, CHIP 15 5% 1/10W |
| 1-216-007-00 | s | RES, CHIP 18 5% 1/10W |
| 1-216-009-00 | s | RES, CHIP 22 5% 1/10W |
| 1-216-011-00 | s | RES, CHIP 27 5% 1/10W |
| 1-216-013-00 | s | RES, CHIP 33 5% 1/10W |
| 1-216-015-00 | s | RES, CHIP 39 5% 1/10W |
| 1-216-017-00 | s | RES, CHIP 47 5% 1/10W |
| 1-216-019-00 | s | RES, CHIP 56 5% 1/10W |
| 1-216-021-00 | s | RES, CHIP 68 5% 1/10W |
| 1-216-023-00 | s | RES, CHIP 82 5% 1/10W |
| 1-216-025-00 | s | RES, CHIP 100 5% 1/10W |
| 1-216-027-00 | s | RES, CHIP 120 5% 1/10W |
| 1-216-029-00 | s | RES, CHIP 150 5% 1/10W |
| 1-216-031-00 | s | RES, CHIP 180 5% 1/10W |
| 1-216-033-00 | s | RES, CHIP 220 5% 1/10W |
| 1-216-035-00 | s | RES, CHIP 270 5% 1/10W |
| 1-216-037-00 | s | RES, CHIP 330 5% 1/10W |
| 1-216-039-00 | s | RES, CHIP 390 5% 1/10W |
| 1-216-041-00 | s | RES, CHIP 470 5% 1/10W |
| 1-216-043-00 | s | RES, CHIP 560 5% 1/10W |
| 1-216-045-00 | s | RES, CHIP 680 5% 1/10W |
| 1-216-047-00 | s | RES, CHIP 820 5% 1/10W |
| 1-216-049-00 | s | RES, CHIP 1k 5% 1/10W |
| 1-216-051-00 | s | RES, CHIP 1.2k 5% 1/10W |
| 1-216-053-00 | s | RES, CHIP 1.5k 5% 1/10W |
| 1-216-055-00 | s | RES, CHIP 1.8k 5% 1/10W |
| 1-216-057-00 | s | RES, CHIP 2.2k 5% 1/10W |
| 1-216-059-00 | s | RES, CHIP 2.7k 5% 1/10W |
| 1-216-061-00 | s | RES, CHIP 3.3k 5% 1/10W |
| 1-216-063-00 | s | RES, CHIP 3.9k 5% 1/10W |
| 1-216-065-00 | s | RES, CHIP 4.7k 5% 1/10W |
| 1-216-067-00 | s | RES, CHIP 5.6k 5% 1/10W |
| 1-216-069-00 | s | RES, CHIP 6.8k 5% 1/10W |
| 1-216-071-00 | s | RES, CHIP 8.2k 5% 1/10W |

| Part No. | SP | Description |
|---|---|---|
| 1-216-073-00 | s | RES, CHIP 10k 5% 1/10W |
| 1-216-075-00 | s | RES, CHIP 12k 5% 1/10W |
| 1-216-077-00 | s | RES, CHIP 15k 5% 1/10W |
| 1-216-079-00 | s | RES, CHIP 18k 5% 1/10W |
| 1-216-081-00 | s | RES, CHIP 22k 5% 1/10W |
| 1-216-083-00 | s | RES, CHIP 27k 5% 1/10W |
| 1-216-085-00 | s | RES, CHIP 33k 5% 1/10W |
| 1-216-087-00 | s | RES, CHIP 39k 5% 1/10W |
| 1-216-089-00 | s | RES, CHIP 47k 5% 1/10W |
| 1-216-091-00 | s | RES, CHIP 56k 5% 1/10W |
| 1-216-093-00 | s | RES, CHIP 68k 5% 1/10W |
| 1-216-095-00 | s | RES, CHIP 82k 5% 1/10W |
| 1-216-097-00 | s | RES, CHIP 100k 5% 1/10W |
| 1-216-099-00 | s | RES, CHIP 120k 5% 1/10W |
| 1-216-101-00 | s | RES, CHIP 150k 5% 1/10W |
| 1-216-103-00 | s | RES, CHIP 180k 5% 1/10W |
| 1-216-105-00 | s | RES, CHIP 220k 5% 1/10W |
| 1-216-107-00 | s | RES, CHIP 270k 5% 1/10W |
| 1-216-109-00 | s | RES, CHIP 330k 5% 1/10W |
| 1-216-111-00 | s | RES, CHIP 390k 5% 1/10W |
| 1-216-113-00 | s | RES, CHIP 470k 5% 1/10W |
| 1-216-115-00 | s | RES, CHIP 560k 5% 1/10W |
| 1-216-117-00 | s | RES, CHIP 680k 5% 1/10W |
| 1-216-119-00 | s | RES, CHIP 820k 5% 1/10W |
| 1-216-121-00 | s | RES, CHIP 1.0M 5% 1/10W |
| 1-216-123-00 | s | RES, CHIP 1.2M 5% 1/10W |
| 1-216-125-00 | s | RES, CHIP 1.5M 5% 1/10W |
| 1-216-127-00 | s | RES, CHIP 1.8M 5% 1/10W |
| 1-216-129-00 | s | RES, CHIP 2.2M 5% 1/10W |
| 1-216-131-00 | s | RES, CHIP 2.7M 5% 1/10W |
| 1-216-133-00 | s | RES, CHIP 3.3M 5% 1/10W |

**RESISTOR, CHIP METAL**

| Part No. | SP | Description |
|---|---|---|
| 1-216-603-11 | s | RES, CHIP METAL 10 1% 1/10W |
| 1-216-605-11 | s | RES, CHIP METAL 12 1% 1/10W |
| 1-216-609-11 | s | RES, CHIP METAL 18 1% 1/10W |
| 1-216-611-11 | s | RES, CHIP METAL 22 1% 1/10W |
| 1-216-614-11 | s | RES, CHIP METAL 30 1% 1/10W |
| 1-216-617-11 | s | RES, CHIP METAL 39 1% 1/10W |
| 1-216-619-11 | s | RES, CHIP METAL 47 1% 1/10W |
| 1-216-620-11 | s | RES, CHIP METAL 51 1% 1/10W |
| 1-216-623-11 | s | RES, CHIP METAL 68 1% 1/10W |
| 1-216-624-11 | s | RES, CHIP METAL 75 1% 1/10W |
| 1-216-625-11 | s | RES, CHIP METAL 82 1% 1/10W |
| 1-216-626-11 | s | RES, CHIP METAL 91 1% 1/10W |
| 1-216-627-11 | s | RES, CHIP METAL 100 1% 1/10W |
| 1-216-629-11 | s | RES, CHIP METAL 120 1% 1/10W |
| 1-216-631-11 | s | RES, CHIP METAL 150 1% 1/10W |
| 1-216-633-11 | s | RES, CHIP METAL 180 1% 1/10W |
| 1-216-634-11 | s | RES, CHIP METAL 200 1% 1/10W |
| 1-216-635-11 | s | RES, CHIP METAL 220 1% 1/10W |
| 1-216-636-11 | s | RES, CHIP METAL 240 1% 1/10W |
| 1-216-637-11 | s | RES, CHIP METAL 270 1% 1/10W |
| 1-216-638-11 | s | RES, CHIP METAL 300 1% 1/10W |
| 1-216-639-11 | s | RES, CHIP METAL 330 1% 1/10W |
| 1-216-640-11 | s | RES, CHIP METAL 360 1% 1/10W |
| 1-216-641-11 | s | RES, CHIP METAL 390 1% 1/10W |
| 1-216-642-11 | s | RES, CHIP METAL 430 1% 1/10W |
| 1-216-643-11 | s | RES, CHIP METAL 470 1% 1/10W |
| 1-216-644-11 | s | RES, CHIP METAL 510 1% 1/10W |
| 1-216-645-11 | s | RES, CHIP METAL 560 1% 1/10W |
| 1-216-647-11 | s | RES, CHIP METAL 680 1% 1/10W |
| 1-216-648-11 | s | RES, CHIP METAL 750 1% 1/10W |
| 1-216-649-11 | s | RES, CHIP METAL 820 1% 1/10W |
| 1-216-650-11 | s | RES, CHIP METAL 910 1% 1/10W |
| 1-216-651-11 | s | RES, CHIP METAL 1.0k 1% 1/10W |
| 1-216-652-11 | s | RES, CHIP METAL 1.1k 1% 1/10W |
| 1-216-653-11 | s | RES, CHIP METAL 1.2k 1% 1/10W |
| 1-216-655-11 | s | RES, CHIP METAL 1.5k 1% 1/10W |
| 1-216-656-11 | s | RES, CHIP METAL 1.6k 1% 1/10W |
| 1-216-657-11 | s | RES, CHIP METAL 1.8k 1% 1/10W |
| 1-216-658-11 | s | RES, CHIP METAL 2k 1% 1/10W |
| 1-216-659-11 | s | RES, CHIP METAL 2.2k 1% 1/10W |
| 1-216-660-11 | s | RES, CHIP METAL 2.4k 1% 1/10W |
| 1-216-661-11 | s | RES, CHIP METAL 2.7k 1% 1/10W |
| 1-216-662-11 | s | RES, CHIP METAL 3k 1% 1/10W |
| 1-216-663-11 | s | RES, CHIP METAL 3.3k 1% 1/10W |
| 1-216-664-11 | s | RES, CHIP METAL 3.5k 1% 1/10W |
| 1-216-665-11 | s | RES, CHIP METAL 3.9k 1% 1/10W |
| 1-216-666-11 | s | RES, CHIP METAL 4.3k 1% 1/10W |
| 1-216-667-11 | s | RES, CHIP METAL 4.7k 1% 1/10W |
| 1-216-668-11 | s | RES, CHIP METAL 5.1k 1% 1/10W |
| 1-216-669-11 | s | RES, CHIP METAL 5.6k 1% 1/10W |
| 1-216-670-11 | s | RES, CHIP METAL 6.2k 1% 1/10W |
| 1-216-671-11 | s | RES, CHIP METAL 6.8k 1% 1/10W |
| 1-216-672-11 | s | RES, CHIP METAL 7.5k 1% 1/10W |
| 1-216-673-11 | s | RES, CHIP METAL 8.2k 1% 1/10W |
| 1-216-674-11 | s | RES, CHIP METAL 9.1k 1% 1/10W |
| 1-216-675-11 | s | RES, CHIP METAL 10k 1% 1/10W |
| 1-216-676-11 | s | RES, CHIP METAL 11k 1% 1/10W |
| 1-216-677-11 | s | RES, CHIP METAL 12k 1% 1/10W |
| 1-216-678-11 | s | RES, CHIP METAL 13k 1% 1/10W |
| 1-216-679-11 | s | RES, CHIP METAL 15k 1% 1/10W |
| 1-216-680-11 | s | RES, CHIP METAL 16k 1% 1/10W |
| 1-216-681-11 | s | RES, CHIP METAL 18k 1% 1/10W |
| 1-216-682-11 | s | RES, CHIP METAL 20k 1% 1/10W |
| 1-216-683-11 | s | RES, CHIP METAL 22k 1% 1/10W |
| 1-216-684-11 | s | RES, CHIP METAL 24k 1% 1/10W |
| 1-216-685-11 | s | RES, CHIP METAL 27k 1% 1/10W |
| 1-216-686-11 | s | RES, CHIP METAL 30k 1% 1/10W |
| 1-216-687-11 | s | RES, CHIP METAL 33k 1% 1/10W |
| 1-216-688-11 | s | RES, CHIP METAL 36k 1% 1/10W |
| 1-216-689-11 | s | RES, CHIP METAL 39k 1% 1/10W |
| 1-216-690-11 | s | RES, CHIP METAL 43k 1% 1/10W |
| 1-216-691-11 | s | RES, CHIP METAL 49k 1% 1/10W |
| 1-216-692-11 | s | RES, CHIP METAL 51k 1% 1/10W |
| 1-216-693-11 | s | RES, CHIP METAL 56k 1% 1/10W |
| 1-216-694-11 | s | RES, CHIP METAL 62k 1% 1/10W |
| 1-216-695-11 | s | RES, CHIP METAL 68k 1% 1/10W |
| 1-216-696-11 | s | RES, CHIP METAL 75k 1% 1/10W |
| 1-216-697-11 | s | RES, CHIP METAL 82k 1% 1/10W |
| 1-216-698-11 | s | RES, CHIP METAL 91k 1% 1/10W |
| 1-216-699-11 | s | RES, CHIP METAL 100k 1% 1/10W |

## CONNECTOR

| Part No. | SP | Description |
|---|---|---|
| 1-564-001-11 | o | RECEPTACLE 2P MALE (STRAIGHT TYPE) |
| 1-564-012-11 | o | RECEPTACLE 2P MALE (ANGLE TYPE) |
| 1-562-147-11 | o | HOUSING 2P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-002-11 | o | RECEPTACLE 3P MALE (STRAIGHT TYPE) |
| 1-564-013-11 | o | RECEPTACLE 3P MALE (ANGLE TYPE) |
| 1-562-148-11 | o | HOUSING 3P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-003-11 | o | RECEPTACLE 4P MALE (STRAIGHT TYPE) |
| 1-564-014-11 | o | RECEPTACLE 4P MALE (ANGLE TYPE) |
| 1-562-149-11 | o | HOUSING 4P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-004-11 | o | RECEPTACLE 5P MALE (STRAIGHT TYPE) |
| 1-564-015-11 | o | RECEPTACLE 5P MALE (ANGLE TYPE) |
| 1-562-150-11 | o | HOUSING 5P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-005-11 | o | RECEPTACLE 6P MALE (STRAIGHT TYPE) |
| 1-564-016-11 | o | RECEPTACLE 6P MALE (ANGLE TYPE) |
| 1-562-151-11 | o | HOUSING 6P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-006-11 | o | RECEPTACLE 7P MALE (STRAIGHT TYPE) |
| 1-564-017-11 | o | RECEPTACLE 7P MALE (ANGLE TYPE) |
| 1-562-152-11 | o | HOUSING 7P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-007-11 | o | RECEPTACLE 8P MALE (STRAIGHT TYPE) |
| 1-564-018-11 | o | RECEPTACLE 8P MALE (ANGLE TYPE) |
| 1-562-153-11 | o | HOUSING 8P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |

| Part No. | SP | Description |
|---|---|---|
| 1-564-008-41 | o | RECEPTACLE 9P MALE (STRAIGHT TYPE) |
| 1-564-019-11 | o | RECEPTACLE 9P MALE (ANGLE TYPE) |
| 1-562-154-11 | o | HOUSING 9P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-009-11 | o | RECEPTACLE 10P MALE (STRAIGHT TYPE) |
| 1-564-020-11 | o | RECEPTACLE 10P MALE (ANGLE TYPE) |
| 1-562-155-11 | o | HOUSING 10P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-010-21 | o | RECEPTACLE 11P MALE (STRAIGHT TYPE) |
| 1-564-021-11 | o | RECEPTACLE 11P MALE (ANGLE TYPE) |
| 1-562-156-11 | o | HOUSING 11P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-011-11 | o | RECEPTACLE 12P MALE (STRAIGHT TYPE) |
| 1-564-022-11 | o | RECEPTACLE 12P MALE (ANGLE TYPE) |
| 1-562-157-11 | o | HOUSING 12P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-683-11 | o | RECEPTACLE 13P MALE (STRAIGHT TYPE) |
| 1-564-743-11 | o | RECEPTACLE 13P MALE (ANGLE TYPE) |
| 1-562-627-11 | o | HOUSING 13P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-069-11 | o | RECEPTACLE 14P MALE (STRAIGHT TYPE) |
| 1-564-630-11 | o | RECEPTACLE 14P MALE (ANGLE TYPE) |
| 1-562-185-11 | o | HOUSING 14P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |
| 1-564-855-11 | o | RECEPTACLE 15P MALE (STRAIGHT TYPE) |
| 1-564-877-11 | o | RECEPTACLE 15P MALE (ANGLE TYPE) |
| 1-562-958-11 | o | HOUSING 15P |
| 1-564-026-21 | o | CONTACT AWG24-30 |
| 1-564-681-21 | o | CONTACT AWG32 |

| Part No. | SP | Description |
|---|---|---|
| **INDUCTOR, MICRO** | | |
| 1-408-876-00 | s | INDUCTOR, MICRO 0.18 5% |
| 1-408-877-00 | s | INDUCTOR, MICRO 0.22 5% |
| 1-408-878-00 | s | INDUCTOR, MICRO 0.33 5% |
| 1-408-879-21 | s | INDUCTOR, MICRO 0.47 5% |
| 1-408-931-00 | s | INDUCTOR, MICRO 0.56 5% |
| 1-408-880-00 | s | INDUCTOR, MICRO 0.68 5% |
| 1-408-763-00 | s | INDUCTOR, MICRO 0.82 5% |
| 1-408-397-00 | s | INDUCTOR, MICRO 1.0 5% |
| 1-408-398-00 | s | INDUCTOR, MICRO 1.2 5% |
| 1-408-399-00 | s | INDUCTOR, MICRO 1.5 5% |
| 1-408-400-00 | s | INDUCTOR, MICRO 1.8 5% |
| 1-408-401-00 | s | INDUCTOR, MICRO 2.2 5% |
| 1-408-402-00 | s | INDUCTOR, MICRO 2.7 5% |
| 1-408-403-00 | s | INDUCTOR, MICRO 3.3 5% |
| 1-408-404-00 | s | INDUCTOR, MICRO 3.9 5% |
| 1-408-405-00 | s | INDUCTOR, MICRO 4.7 5% |
| 1-408-406-00 | s | INDUCTOR, MICRO 5.6 5% |
| 1-408-407-00 | s | INDUCTOR, MICRO 6.8 5% |
| 1-408-408-00 | s | INDUCTOR, MICRO 8.2 5% |
| 1-408-409-00 | s | INDUCTOR, MICRO 10 5% |
| 1-408-410-00 | s | INDUCTOR, MICRO 12 5% |
| 1-408-411-00 | s | INDUCTOR, MICRO 15 5% |
| 1-408-412-00 | s | INDUCTOR, MICRO 18 5% |
| 1-408-413-00 | s | INDUCTOR, MICRO 22 5% |
| 1-408-414-00 | s | INDUCTOR, MICRO 27 5% |
| 1-408-415-00 | s | INDUCTOR, MICRO 33 5% |
| 1-408-416-00 | s | INDUCTOR, MICRO 39 5% |
| 1-408-417-21 | s | INDUCTOR, MICRO 47 5% |
| 1-408-418-00 | s | INDUCTOR, MICRO 56 5% |
| 1-408-419-00 | s | INDUCTOR, MICRO 68 5% |
| 1-408-420-00 | s | INDUCTOR, MICRO 82 5% |
| 1-408-421-00 | s | INDUCTOR, MICRO 100 5% |
| 1-408-422-00 | s | INDUCTOR, MICRO 120 5% |
| 1-408-423-00 | s | INDUCTOR, MICRO 150 5% |
| 1-408-424-00 | s | INDUCTOR, MICRO 180 5% |
| 1-408-425-00 | s | INDUCTOR, MICRO 220 5% |
| 1-408-426-00 | s | INDUCTOR, MICRO 270 5% |
| 1-408-427-00 | s | INDUCTOR, MICRO 330 5% |
| 1-408-428-00 | s | INDUCTOR, MICRO 390 5% |
| 1-408-429-00 | s | INDUCTOR, MICRO 470 5% |

**AT-50 BOARD**

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| | ⚠A-7513-668-A | o | MOUNTED CIRCUIT BOARD "AT-50" |
| C25 | 1-124-472-11 | s | ELECT 470 20% 10V |
| C236 | 1-163-105-00 | s | CERAMIC CHIP 33PF 5% 50V |
| C237 | 1-102-116-00 | s | CERAMIC 680PF 10% 50V |
| CN1 | 1-560-360-00 | o | RECEPTACLE, 6P MALE |
| | 1-561-518-00 | o | PLUG HOUSING 6P |
| | 1-560-372-00 | o | PLUG CONTACT |
| CN4 | 1-560-359-00 | o | RECEPTACLE, 5P MALE |
| | 1-561-517-00 | o | PLUG HOUSING 5P |
| | 1-560-372-00 | o | PLUG CONTACT |
| D1 | 8-719-100-05 | s | 1S2837 |
| D3 | 8-719-100-05 | s | 1S2837 |
| D4 | 8-719-105-57 | s | RD3.9MB1 |
| D5 | 8-719-100-03 | s | 1S2835 |
| D7 | 8-719-105-63 | s | RD4.3MB1 |
| D8 | 8-719-101-23 | s | 1SS123 |
| D9 | 8-719-815-55 | s | 1S1555 |
| | | | Serial No. 10001 - 10380 (UC) |
| | 8-719-100-03 | s | 1S2835 |
| | | | Serial No. 10381 - (UC) |
| | | | Serial No. 40001 - (EK) |
| D10 | 8-719-815-55 | s | 1S1555 |
| | | | Serial No. 10001 - 10380 (UC) |
| D101 | 8-719-100-05 | s | 1S2837 |
| D201 | 8-719-100-05 | s | 1S2837 |
| IC1 | 8-759-908-17 | s | TL082CPS: TI |
| IC2 | 8-759-101-12 | s | uPC311G2: NEC |
| IC3 | 8-759-320-36 | s | HD6305Y2P: HITACHI |
| IC4 | 8-759-741-59 | s | MBM27C64-25CCUM7103 |
| IC5 | 8-759-299-99 | s | TC4051BF: TOSHIBA |
| IC6 | 8-759-299-99 | s | TC4051BF: TOSHIBA |
| IC7 | 8-759-299-99 | s | TC4051BF: TOSHIBA |
| IC8 | 8-759-299-99 | s | TC4051BF: TOSHIBA |
| IC9 | 8-759-200-77 | s | TC4028BF: TOSHIBA |
| IC10 | 8-759-200-80 | s | TC4050BF: TOSHIBA |
| IC11 | 8-759-200-80 | s | TC4050BF: TOSHIBA |
| IC12 | 8-759-908-23 | s | MB88303: MOTOROLA |
| IC13 | 8-759-200-90 | s | TC4538BF: TOSHIBA |
| IC14 | 8-759-209-13 | s | TC4042BF: TOSHIBA |
| IC15 | 8-759-209-13 | s | TC4042BF: TOSHIBA |
| IC16 | 8-759-209-13 | s | TC4042BF: TOSHIBA |
| IC17 | 8-759-209-13 | s | TC4042BF: TOSHIBA |
| IC18 | 8-759-209-13 | s | TC4042BF: TOSHIBA |
| IC19 | 8-759-209-13 | s | TC4042BF: TOSHIBA |
| IC20 | 8-759-200-80 | s | TC4050BF: TOSHIBA |
| IC21 | 8-759-200-80 | s | TC4050BF: TOSHIBA |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| IC22 | 8-759-200-83 | s | TC4071BF: TOSHIBA |
| IC23 | 8-759-200-83 | s | TC4071BF: TOSHIBA |
| IC24 | 8-759-745-64 | s | NJM4560M: JRC |
| IC25 | 8-759-200-80 | s | TC4050BF: TOSHIBA |
| IC26 | 8-759-200-80 | s | TC4050BF: TOSHIBA |
| IC27 | 8-752-321-18 | s | CXK1005P: SONY |
| IC28 | 8-759-200-79 | s | TC4049BF: TOSHIBA |
| IC29 | 8-759-208-11 | s | TC4053BFHB: TOSHIBA |
| IC30 | 8-759-207-74 | s | TC4030BFHB: TOSHIBA |
| ⚠PS101 | 1-532-727-11 | s | LINC, IC |
| ⚠PS201 | 1-532-727-11 | s | LINC, IC |
| Q1 | 8-729-100-76 | s | 2SA812 |
| Q2 | 8-729-100-66 | s | 2SC1623 |
| Q3 | 8-729-100-66 | s | 2SC1623 |
| Q4 | 8-729-100-66 | s | 2SC1623 |
| Q5 | 8-729-100-66 | s | 2SC1623 |
| Q6 | 8-729-100-66 | s | 2SC1623 |
| Q7 | 8-729-100-66 | s | 2SC1623 |
| Q8 | 8-729-100-66 | s | 2SC1623 |
| Q9 | 8-729-100-66 | s | 2SC1623 |
| Q10 | 8-729-100-66 | s | 2SC1623 |
| Q11 | 8-729-100-66 | s | 2SC1623 |
| Q12 | 8-729-100-66 | s | 2SC1623 |
| Q13 | 8-729-100-66 | s | 2SC1623 |
| Q14 | 8-729-100-66 | s | 2SC1623 |
| Q15 | 8-729-100-66 | s | 2SC1623 |
| Q16 | 8-729-100-66 | s | 2SC1623 |
| Q17 | 8-729-100-66 | s | 2SC1623 |
| Q18 | 8-729-100-66 | s | 2SC1623 |
| Q19 | 8-729-100-66 | s | 2SC1623 |
| Q20 | 8-729-100-66 | s | 2SC1623 |
| Q21 | 8-729-100-66 | s | 2SC1623 |
| Q22 | 8-729-100-66 | s | 2SC1623 |
| Q23 | 8-729-100-66 | s | 2SC1623 |
| Q24 | 8-729-100-66 | s | 2SC1623 |
| Q25 | 8-729-100-66 | s | 2SC1623 |
| Q26 | 8-729-100-66 | s | 2SC1623 |
| Q27 | 8-729-100-76 | s | 2SA812 |
| Q28 | 8-729-100-76 | s | 2SA812 |
| Q29 | 8-729-100-66 | s | 2SC1623 |
| Q30 | 8-729-100-76 | s | 2SA812 |
| Q31 | 8-729-100-76 | s | 2SA812 |
| Q32 | 8-729-100-66 | s | 2SC1623 |
| Q101 | 8-729-109-43 | s | 2SK94-X3 |
| Q104 | 8-729-175-72 | s | 2SC2757-T33 |
| Q105 | 8-729-175-72 | s | 2SC2757-T33 |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| Q106 | 8-729-122-63 | s | 2SA1226 |
| Q107 | 8-729-100-66 | s | 2SC1623 |
| Q108 | 8-729-100-76 | s | 2SA812 |
| Q109 | 8-729-100-66 | s | 2SC1623 |
| Q110 | 8-729-100-76 | s | 2SA812 |
| Q111 | 8-729-109-43 | s | 2SK94-X3 |
| Q112 | 8-729-175-72 | s | 2SC2757-T33 |
| Q113 | 8-729-175-72 | s | 2SC2757-T33 |
| Q114 | 8-729-122-63 | s | 2SA1226 |
| Q115 | 8-729-100-66 | s | 2SC1623 |
| Q116 | 8-729-100-76 | s | 2SA812 |
| Q117 | 8-729-100-66 | s | 2SC1623 |
| Q118 | 8-729-100-76 | s | 2SA812 |
| Q119 | 8-729-109-43 | s | 2SK94-X3 |
| Q121 | 8-729-175-72 | s | 2SC2757-T33 |
| Q122 | 8-729-175-72 | s | 2SC2757-T33 |
| Q123 | 8-729-122-63 | s | 2SA1226 |
| Q124 | 8-729-100-66 | s | 2SC1623 |
| Q125 | 8-729-100-76 | s | 2SA812 |
| Q126 | 8-729-100-66 | s | 2SC1623 |
| Q127 | 8-729-100-76 | s | 2SA812 |
| Q128 | 8-729-109-43 | s | 2SK94-X3 |
| Q130 | 8-729-175-72 | s | 2SC2757-T33 |
| Q131 | 8-729-175-72 | s | 2SC2757-T33 |
| Q132 | 8-729-122-63 | s | 2SA1226 |
| Q133 | 8-729-100-66 | s | 2SC1623 |
| Q134 | 8-729-100-76 | s | 2SA812 |
| Q135 | 8-729-100-66 | s | 2SC1623 |
| Q136 | 8-729-100-76 | s | 2SA812 |
| Q137 | 8-729-100-66 | s | 2SC1623 |
| Q201 | 8-729-109-43 | s | 2SK94-X3 |
| Q204 | 8-729-175-72 | s | 2SC2757-T33 |
| Q205 | 8-729-175-72 | s | 2SC2757-T33 |
| Q206 | 8-729-122-63 | s | 2SA1226 |
| Q207 | 8-729-100-66 | s | 2SC1623 |
| Q208 | 8-729-100-76 | s | 2SA812 |
| Q209 | 8-729-100-66 | s | 2SC1623 |
| Q210 | 8-729-100-76 | s | 2SA812 |
| Q211 | 8-729-109-43 | s | 2SK94-X3 |
| Q212 | 1-729-175-72 | s | 2SC2757-T33 |
| Q213 | 8-729-175-72 | s | 2SC2757-T33 |
| Q214 | 8-729-122-63 | s | 2SA1226 |
| Q215 | 8-729-100-66 | s | 2SC1623 |
| Q216 | 8-729-100-76 | s | 2SA812 |
| Q217 | 8-729-100-66 | s | 2SC1623 |
| Q218 | 8-729-100-76 | s | 2SA812 |
| Q219 | 8-729-109-43 | s | 2SK94-X3 |
| Q221 | 1-729-175-72 | s | 2SC2757-T33 |
| Q222 | 8-729-175-72 | s | 2SC2757-T33 |
| Q223 | 8-729-122-63 | s | 2SA1226 |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| Q224 | 8-729-100-66 | s | 2SC1623 |
| Q225 | 8-729-100-76 | s | 2SA812 |
| Q226 | 8-729-100-66 | s | 2SC1623 |
| Q227 | 8-729-100-76 | s | 2SA812 |
| Q228 | 8-729-109-43 | s | 2SK94-X3 |
| Q230 | 1-729-175-72 | s | 2SC2757-T33 |
| Q231 | 8-729-175-72 | s | 2SC2757-T33 |
| Q232 | 8-729-122-63 | s | 2SA1226 |
| Q233 | 8-729-100-66 | s | 2SC1623 |
| Q234 | 8-729-100-76 | s | 2SA812 |
| Q235 | 8-729-100-66 | s | 2SC1623 |
| Q236 | 8-729-100-76 | s | 2SA812 |
| Q237 | 8-729-100-66 | s | 2SC1623 |
| R279 | 1-249-441-11 | s | CARBON 100K 5% 1/4W |
| R280 | 1-249-441-11 | s | CARBON 100K 5% 1/4W<br>Serial No. 10281 - (UC)<br>40001 - (EK) |
| RV1 | 1-230-522-11 | s | METAL 4.7K |
| RV2 | 1-230-520-11 | s | METAL 1K |
| RV101 | 1-230-519-11 | s | METAL 470 |
| RV102 | 1-230-522-11 | s | METAL 4.7K |
| RV103 | 1-230-522-11 | s | METAL 4.7K |
| RV104 | 1-230-522-11 | s | METAL 4.7K |
| RV201 | 1-230-519-11 | s | METAL 470 |
| RV202 | 1-230-522-11 | s | METAL 4.7K |
| RV203 | 1-230-522-11 | s | METAL 4.7K |
| RV204 | 1-230-522-11 | s | METAL 4.7K |
| S1 | 1-570-857-11 | s | SLIDE |
| T1 | 1-427-487-00 | s | OUTPUT |
| X1 | 1-567-192-11 | s | CERAMIC 8.4672MHz |

### CN-224 BOARD

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| | 1-625-594-12 | o | PRINTED CIRCUIT BOARD "CN-224" |
| CN1 | 1-561-336-00 | s | COAXIAL "RETURN VIDEO IN" |
| CN2 | 1-561-336-00 | s | COAXIAL "RETURN VIDEO OUT" |
| CN3 | 1-561-336-00 | s | COAXIAL "G/Y/Y OUT" |
| CN4 | 1-561-336-00 | s | COAXIAL "B/B-Y OUT" |
| CN5 | 1-561-336-00 | s | COAXIAL "R/R-Y/C OUT" |
| CN6 | 1-561-336-00 | s | COAXIAL "GENLOCK IN" |
| CN7 | 1-561-336-00 | s | COAXIAL "GENLOCK OUT" |
| CN8 | 1-561-336-00 | s | COAXIAL "VBS OUT 1" |
| CN9 | 1-561-336-00 | s | COAXIAL "VBS OUT 2" |
| CN10 | 1-561-336-00 | s | COAXIAL "MONITOR OUT" |
| CN11 | 1-561-336-00 | s | COAXIAL "SYNC OUT" |
| CN12 | 1-565-301-11 | s | RECEPTACLE, 4P FEMALE "Y/C OUT" |
| R1 | 1-215-394-00 | s | CARBON 75 5% 1/4W |
| R2 | 1-215-394-00 | s | CARBON 75 5% 1/4W |
| R3 | 1-249-437-11 | s | CARBON 47K 5% 1/4W |
| R4 | 1-249-437-11 | s | CARBON 47K 5% 1/4W |
| S1 | 1-516-576-00 | s | SLIDE "75 ohm ON/OFF" |
| S2 | 1-516-576-00 | s | SLIDE "75 ohm ON/OFF" |
| S3 | 1-571-413-11 | s | SLIDE "YC/GBR/Y,B-Y,R-Y" |

### CT-105 BOARD

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| | A-7513-665-A | o | MOUNTED CIRCUIT BOARD "CT-105" |
| D1 | 8-719-815-55 | s | 1S1555 |
| D2 | 8-719-822-06 | s | TLG206 |
| D3 | 8-719-815-55 | s | 1S1555 |
| D4 | 8-719-822-06 | s | TLG206 |
| D5 | 8-719-815-55 | s | 1S1555 |
| D6 | 8-719-815-55 | s | 1S1555 |
| D7 | 8-719-815-55 | s | 1S1555 |
| D8 | 8-719-815-55 | s | 1S1555 |
| D9 | 8-719-815-55 | s | 1S1555 |
| D10 | 8-719-815-55 | s | 1S1555 |
| D11 | 8-719-815-55 | s | 1S1555 |
| D12 | 8-719-815-55 | s | 1S1555 |
| D13 | 8-719-815-55 | s | 1S1555 |
| D14 | 8-719-815-55 | s | 1S1555 |
| D15 | 8-719-815-55 | s | 1S1555 |
| D16 | 8-719-815-55 | s | 1S1555 |
| D17 | 8-719-815-55 | s | 1S1555 |
| D18 | 8-719-815-55 | s | 1S1555 |
| RV1 | 1-238-105-11 | s | CARBON 20K "INCOM LEVEL" |
| S1 | 1-553-526-00 | s | SLIDE "LOCK" |
| S2 | 1-552-774-00 | s | PUSH "CALL" |
| S3 | 1-571-417-11 | s | TOGGLE "AUTO BLACK" |
| S4 | 1-571-417-11 | s | TOGGLE "AUTO WHITE" |
| S5 | 1-571-416-11 | s | TOGGLE "DISP" |
| S6 | 1-571-415-11 | s | TOGGLE "MODE" |
| S7 | 1-570-101-41 | s | KEY "KNEE, AUTO" |
| S8 | 1-570-101-41 | s | KEY "KNEE, PRE" |
| S9 | 1-570-101-41 | s | KEY "KNEE, MAN" |
| S10 | 1-570-101-41 | s | KEY "GAIN, 0dB" |
| S11 | 1-570-101-41 | s | KEY "GAIN, 9dB" |
| S12 | 1-570-101-41 | s | KEY "GAIN, 18dB" |
| S13 | 1-570-101-41 | s | KEY "WHITE, AUTO" |
| S14 | 1-570-101-41 | s | KEY "WHITE, PRE" |
| S15 | 1-570-101-41 | s | KEY "WHITE, MAN" |
| S16 | 1-570-101-41 | s | KEY "REMOTE" |

**CT-106 BOARD**

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
|  | ⚠A-7615-216-A | o | CT-106 BOARD ASSY WITH CT-108, CT-109 BOARD |
| D1 | 8-719-815-55 | s | 1S1555 |
| D2 | 8-719-822-06 | s | TLG206 |
| D3 | 8-719-822-06 | s | TLG206 |
| D4 | 8-719-815-55 | s | 1S1555 |
| D5 | 8-719-815-55 | s | 1S1555 |
| D6 | 8-719-815-55 | s | 1S1555 |
| D7 | 8-719-815-55 | s | 1S1555 |
| D8 | 8-719-815-55 | s | 1S1555 |
| D9 | 8-719-815-55 | s | 1S1555 |
| D10 | 8-719-815-55 | s | 1S1555 |
| D11 | 8-719-815-55 | s | 1S1555 |
| RV1 | 1-238-435-11 | s | CARBON 10K |
| RV2 | 1-238-102-11 | s | CARBON 10K |
| RV3 | 1-238-432-11 | s | CARBON 10K |
| RV4 | 1-238-104-11 | s | CARBON 10K |
| RV5 | 1-238-102-11 | s | CARBON 10K |
| RV6 | 1-238-102-11 | s | CARBON 10K |
| RV7 | 1-238-105-11 | s | CARBON 20K |
| RV8 | 1-238-102-11 | s | CARBON 10K |
| RV9 | 1-238-433-11 | s | CARBON 20K |
| RV10 | 1-238-102-11 | s | CARBON 10K |
| RV11 | 1-238-102-11 | s | CARBON 10K |
| S1 | 1-571-414-11 | s | TOGGLE "SC PHASE" |
| S2 | 1-570-969-11 | s | KEY "GAMMA" |
| S3 | 1-570-101-41 | s | KEY "RECALL" |
| S4 | 1-570-101-41 | s | KEY "STORE" |
| S5 | 1-570-101-41 | s | KEY "CLEAR" |
| S6 | 1-570-101-41 | s | KEY "No1" |
| S7 | 1-570-101-41 | s | KEY "No2" |
| S8 | 1-570-101-41 | s | KEY "No3" |
| S9 | 1-570-101-41 | s | KEY "No4" |

**CT-107 BOARD**

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
|  | A-7513-666-A | o | MOUNTED CIRCUIT BOARD "CT-107" |
| D1 | 8-719-822-06 | s | TLG206 |
| D2 | 8-719-822-06 | s | TLG206 |
| D3 | 8-719-815-55 | s | 1S1555 |
| RV1 | 1-238-102-21 | s | CARBON 10K "PEDESTAL LEVEL" |
| RV2 | 1-238-102-11 | s | CARBON 10K "PEDESTAL LEVEL" |
| S1 | 1-570-969-11 | s | KEY "IRIS SELECT" |

**CT-108 BOARD**

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
|  | ⚠A-7513-664-A | o | MOUNTED CIRCUIT BOARD "CT-108" |
| C1 | 1-124-442-00 | s | ELECT 330 20% 6.3V |
| C2 | 1-124-442-00 | s | ELECT 330 20% 6.3V |
| C5 | 1-124-470-11 | s | ELECT 470 20% 6.3V |
| D1 | 8-719-105-52 | s | RD3.6M-B2 |
| D2 | 8-719-100-05 | s | 1S2837 |
| D3 | 8-719-106-22 | s | RD7.5M-B1 |
| ⚠PS1 | 1-532-727-11 | s | LINC, IC |
| Q1 | 8-729-175-72 | s | 2SC2757-T33 |
| Q2 | 8-729-175-72 | s | 2SC2757-T33 |
| Q3 | 8-729-100-66 | s | 2SC1623 |
| Q4 | 8-729-100-76 | s | 2SA812 |
| Q5 | 8-729-100-66 | s | 2SC1623 |
| Q6 | 8-729-100-76 | s | 2SA812 |
| Q7 | 8-729-100-66 | s | 2SC1623 |
| Q8 | 8-729-100-76 | s | 2SA812 |
| RV1 | 1-238-103-11 | s | CARBON 1K "VBS LEVEL" |
| RV2 | 1-238-103-11 | s | CARBON 1K "VBS CHROMA LEVEL" |

## CT-109 BOARD

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| | 1-623-593-11 | o | PRINTED CIRCUIT BOARD "CT-109" |
| R1 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| R2 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| R3 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| R4 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| R5 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| S1 | 1-571-412-11 | s | ROTARY "SHUTTER" |

## JK-6 BOARD

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| | 1-610-455-00 | o | PRINTED CIRCUIT BOARD "JK-6" |
| J1 | 1-507-883-00 | s | SMALL TYPE 4P "INTERCOM" |

## VA-65 BOARD

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| | A-7513-667-A | o | MOUNTED CIRCUIT BOARD "VA-65" |
| C18 | 1-124-119-00 | s | ELECT 330 20% 16V |
| C19 | 1-131-374-00 | s | TANTALUM 33 10% 16V |
| CN13 | 1-560-358-00 | o | RECEPTACLE, 4P MALE |
| | 1-561-516-00 | o | PLUG HOUSING 4P |
| | 1-560-372-00 | o | PLUG CONTACT |
| D4 | 8-719-100-05 | s | 1S2837 |
| D5 | 8-719-100-05 | s | 1S2837 |
| D6 | 8-719-100-05 | s | 1S2837 |
| D102 | 8-719-100-05 | s | 1S2837 |
| D103 | 8-719-106-16 | s | RD6.8M-B1 |
| D201 | 8-719-105-52 | s | RD3.6M-B1 |
| D202 | 8-719-100-05 | s | 1S2837 |
| D203 | 8-719-106-16 | s | RD6.8M-B1 |
| D301 | 8-719-105-52 | s | RD3.6M-B1 |
| D302 | 8-719-100-05 | s | 1S2837 |
| D303 | 8-719-106-16 | s | RD6.8M-B1 |
| D401 | 8-719-105-52 | s | RD3.6M-B1 |
| D402 | 8-719-100-05 | s | 1S2837 |
| D403 | 8-719-106-16 | s | RD5.8M-B1 |
| IC1 | 8-741-104-00 | s | BX1040: SONY |
| IC2 | 8-759-131-11 | s | uPC311C: NEC |
| IC3 | 8-759-208-18 | s | TC4528BFHB: TOSHIBA |
| IC4 | 8-759-131-11 | s | uPC311C: NEC |
| IC101 | 8-741-108-20 | s | BX1082: SONY |
| IC102 | 8-741-108-20 | s | BX1082: SONY |
| IC201 | 8-741-108-20 | s | BX1082: SONY |
| IC202 | 8-741-108-20 | s | BX1082: SONY |
| IC301 | 8-741-108-20 | s | BX1082: SONY |
| IC302 | 8-741-108-20 | s | BX1082: SONY |
| IC401 | 8-741-108-20 | s | BX1082: SONY |
| IC402 | 8-741-108-20 | s | BX1082: SONY |
| ⚠PS2 | 1-532-727-11 | s | LINC, IC |
| PS5 | 1-532-727-11 | s | LINC, IC |
| PS101 | 1-532-727-11 | s | LINC, IC |
| PS201 | 1-532-727-11 | s | LINC, IC |
| PS301 | 1-532-727-11 | s | LINC, IC |
| PS401 | 1-532-727-11 | s | LINC, IC |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| Q3 | 8-729-100-66 | s | 2SC1623 |
| Q4 | 8-729-100-66 | s | 2SC1623 |
| Q5 | 8-729-100-76 | s | 2SA812 |
| Q6 | 8-729-100-66 | s | 2SC1623 |
| Q7 | 8-729-100-66 | s | 2SC1623 |
| Q8 | 8-729-100-76 | s | 2SA812 |
| Q10 | 8-729-175-72 | s | 2SC2757-T33 |
| Q11 | 8-729-175-72 | s | 2SC2757-T33 |
| Q12 | 8-729-122-63 | s | 2SA1226 |
| Q13 | 8-729-100-66 | s | 2SC1623 |
| Q14 | 8-729-100-76 | s | 2SA812 |
| Q15 | 8-729-100-66 | s | 2SC1623 |
| Q16 | 8-729-100-76 | s | 2SA812 |
| Q101 | 8-729-100-66 | s | 2SC1623 |
| Q102 | 8-729-100-66 | s | 2SC1623 |
| Q103 | 8-729-100-66 | s | 2SC1623 |
| Q104 | 8-729-175-72 | s | 2SC2757-T33 |
| Q105 | 8-729-175-72 | s | 2SC2757-T33 |
| Q106 | 8-729-122-63 | s | 2SA1226 |
| Q107 | 8-729-100-66 | s | 2SC1623 |
| Q108 | 8-729-100-76 | s | 2SA812 |
| Q109 | 8-729-100-66 | s | 2SC1623 |
| Q110 | 8-729-100-76 | s | 2SA812 |
| Q111 | 8-729-109-43 | s | 2SK94-X3 |
| Q112 | 8-729-175-72 | s | 2SC2757-T33 |
| Q113 | 8-729-175-72 | s | 2SC2757-T33 |
| Q114 | 8-729-122-63 | s | 2SA1226 |
| Q115 | 8-729-100-66 | s | 2SC1623 |
| Q116 | 8-729-100-76 | s | 2SA812 |
| Q117 | 8-729-100-66 | s | 2SC1623 |
| Q118 | 8-729-100-76 | s | 2SA812 |
| Q119 | 8-729-109-43 | s | 2SK94-X3 |
| Q120 | 8-729-109-43 | s | 2SK94-X3 |
| Q121 | 8-729-175-72 | s | 2SC2757-T33 |
| Q122 | 8-729-175-72 | s | 2SC2757-T33 |
| Q123 | 8-729-122-63 | s | 2SA1226 |
| Q124 | 8-729-100-66 | s | 2SC1623 |
| Q125 | 8-729-100-76 | s | 2SA812 |
| Q126 | 8-729-100-66 | s | 2SC1623 |
| Q127 | 8-729-100-76 | s | 2SA812 |
| Q128 | 8-729-109-43 | s | 2SK94-X3 |
| Q129 | 8-729-109-43 | s | 2SK94-X3 |
| Q130 | 8-729-175-72 | s | 2SC2757-T33 |
| Q131 | 8-729-175-72 | s | 2SC2757-T33 |
| Q132 | 8-729-122-63 | s | 2SA1226 |
| Q133 | 8-729-100-66 | s | 2SC1623 |
| Q134 | 8-729-100-76 | s | 2SA812 |
| Q135 | 8-729-100-66 | s | 2SC1623 |
| Q136 | 8-729-100-76 | s | 2SA812 |
| Q201 | 8-729-100-66 | s | 2SC1623 |
| Q202 | 8-729-100-66 | s | 2SC1623 |
| Q203 | 8-729-100-66 | s | 2SC1623 |
| Q204 | 8-729-175-72 | s | 2SC2757-T33 |
| Q205 | 8-729-175-72 | s | 2SC2757-T33 |
| Q206 | 8-729-122-63 | s | 2SA1226 |
| Q207 | 8-729-100-66 | s | 2SC1623 |
| Q208 | 8-729-100-76 | s | 2SA812 |
| Q209 | 8-729-100-66 | s | 2SC1623 |
| Q210 | 8-729-100-76 | s | 2SA812 |
| Q211 | 8-729-109-43 | s | 2SK94-X3 |
| Q212 | 8-729-175-72 | s | 2SC2757-T33 |
| Q213 | 8-729-175-72 | s | 2SC2757-T33 |
| Q214 | 8-729-122-63 | s | 2SA1226 |
| Q215 | 8-729-100-66 | s | 2SC1623 |
| Q216 | 8-729-100-76 | s | 2SA812 |
| Q217 | 8-729-100-66 | s | 2SC1623 |
| Q218 | 8-729-100-76 | s | 2SA812 |
| Q219 | 8-729-109-43 | s | 2SK94-X3 |
| Q220 | 8-729-109-43 | s | 2SK94-X3 |
| Q221 | 8-729-175-72 | s | 2SC2757-T33 |
| Q222 | 8-729-175-72 | s | 2SC2757-T33 |
| Q223 | 8-729-122-63 | s | 2SA1226 |
| Q224 | 8-729-100-66 | s | 2SC1623 |
| Q225 | 8-729-100-76 | s | 2SA812 |
| Q226 | 8-729-100-66 | s | 2SC1623 |
| Q227 | 8-729-100-76 | s | 2SA812 |
| Q228 | 8-729-109-43 | s | 2SK94-X3 |
| Q229 | 8-729-109-43 | s | 2SK94-X3 |
| Q230 | 8-729-175-72 | s | 2SC2757-T33 |
| Q231 | 8-729-175-72 | s | 2SC2757-T33 |
| Q232 | 8-729-122-63 | s | 2SA1226 |
| Q233 | 8-729-100-66 | s | 2SC1623 |
| Q234 | 8-729-100-76 | s | 2SA812 |
| Q235 | 8-729-100-66 | s | 2SC1623 |
| Q236 | 8-729-100-76 | s | 2SA812 |
| Q301 | 8-729-100-66 | s | 2SC1623 |
| Q302 | 8-729-100-66 | s | 2SC1623 |
| Q303 | 8-729-100-66 | s | 2SC1623 |
| Q304 | 8-729-175-72 | s | 2SC2757-T33 |
| Q305 | 8-729-175-72 | s | 2SC2757-T33 |
| Q306 | 8-729-122-63 | s | 2SA1226 |
| Q307 | 8-729-100-66 | s | 2SC1623 |
| Q308 | 8-729-100-76 | s | 2SA812 |
| Q309 | 8-729-100-66 | s | 2SC1623 |
| Q310 | 8-729-100-76 | s | 2SA812 |
| Q311 | 8-729-109-43 | s | 2SK94-X3 |
| Q312 | 8-729-175-72 | s | 2SC2757-T33 |
| Q313 | 8-729-175-72 | s | 2SC2757-T33 |
| Q314 | 8-729-122-63 | s | 2SA1226 |
| Q315 | 8-729-100-66 | s | 2SC1623 |
| R481 | 1-247-804-11 | s | CARBON 75 5% 1/4W<br>Serial No. 10001 - 10580 (UC) |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| Q316 | 8-729-100-76 | s | 2SA812 |
| Q317 | 8-729-100-66 | s | 2SC1623 |
| Q318 | 8-729-100-76 | s | 2SA812 |
| Q319 | 8-729-109-43 | s | 2SK94-X3 |
| Q320 | 8-729-109-43 | s | 2SK94-X3 |
| Q321 | 8-729-175-72 | s | 2SC2757-T33 |
| Q322 | 8-729-175-72 | s | 2SC2757-T33 |
| Q323 | 8-729-122-63 | s | 2SA1226 |
| Q324 | 8-729-100-66 | s | 2SC1623 |
| Q325 | 8-729-100-76 | s | 2SA812 |
| Q326 | 8-729-100-66 | s | 2SC1623 |
| Q327 | 8-729-100-76 | s | 2SA812 |
| Q328 | 8-729-109-43 | s | 2SK94-X3 |
| Q329 | 8-729-109-43 | s | 2SK94-X3 |
| Q330 | 8-729-175-72 | s | 2SC2757-T33 |
| Q331 | 8-729-175-72 | s | 2SC2757-T33 |
| Q332 | 8-729-122-63 | s | 2SA1226 |
| Q333 | 8-729-100-66 | s | 2SC1623 |
| Q334 | 8-729-100-76 | s | 2SA812 |
| Q335 | 8-729-100-66 | s | 2SC1623 |
| Q336 | 8-729-100-76 | s | 2SA812 |
| Q401 | 8-729-100-66 | s | 2SC1623 |
| Q402 | 8-729-100-66 | s | 2SC1623 |
| Q403 | 8-729-100-66 | s | 2SC1623 |
| Q404 | 8-729-175-72 | s | 2SC2757-T33 |
| Q405 | 8-729-175-72 | s | 2SC2757-T33 |
| Q406 | 8-729-122-63 | s | 2SA1226 |
| Q407 | 8-729-100-66 | s | 2SC1623 |
| Q408 | 8-729-100-76 | s | 2SA812 |
| Q409 | 8-729-100-66 | s | 2SC1623 |
| Q410 | 8-729-100-76 | s | 2SA812 |
| Q411 | 8-729-109-43 | s | 2SK94-X3 |
| Q412 | 8-729-175-72 | s | 2SC2757-T33 |
| Q413 | 8-729-175-72 | s | 2SC2757-T33 |
| Q414 | 8-729-122-63 | s | 2SA1226 |
| Q415 | 8-729-100-66 | s | 2SC1623 |
| Q416 | 8-729-100-76 | s | 2SA812 |
| Q417 | 8-729-100-66 | s | 2SC1623 |
| Q418 | 8-729-100-76 | s | 2SA812 |
| Q419 | 8-729-109-43 | s | 2SK94-X3 |
| Q420 | 8-729-109-43 | s | 2SK94-X3 |
| Q421 | 8-729-175-72 | s | 2SC2757-T33 |
| Q422 | 8-729-175-72 | s | 2SC2757-T33 |
| Q423 | 8-729-122-63 | s | 2SA1226 |
| Q424 | 8-729-100-66 | s | 2SC1623 |
| Q425 | 8-729-100-76 | s | 2SA812 |
| Q426 | 8-729-100-66 | s | 2SC1623 |
| Q427 | 8-729-100-76 | s | 2SA812 |
| Q428 | 8-729-109-43 | s | 2SK94-X3 |
| Q429 | 8-729-109-43 | s | 2SK94-X3 |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| Q430 | 8-729-175-72 | s | 2SC2757-T33 |
| Q431 | 8-729-175-72 | s | 2SC2757-T33 |
| Q432 | 8-729-122-63 | s | 2SA1226 |
| Q433 | 8-729-100-66 | s | 2SC1623 |
| Q434 | 8-729-100-76 | s | 2SA812 |
| Q435 | 8-729-100-66 | s | 2SC1623 |
| Q436 | 8-729-100-76 | s | 2SA812 |
| RV101 | 1-228-887-00 | s | METAL 470 |
| RV102 | 1-228-890-00 | s | METAL 4.7K |
| RV103 | 1-228-890-00 | s | METAL 4.7K |
| RV104 | 1-228-888-00 | s | METAL 1K |
| RV201 | 1-228-887-00 | s | METAL 470 |
| RV202 | 1-228-890-00 | s | METAL 4.7K |
| RV203 | 1-228-890-00 | s | METAL 4.7K |
| RV204 | 1-228-890-00 | s | METAL 4.7K |
| RV301 | 1-228-887-00 | s | METAL 470 |
| RV302 | 1-228-890-00 | s | METAL 4.7K |
| RV303 | 1-228-890-00 | s | METAL 4.7K |
| RV304 | 1-228-890-00 | s | METAL 4.7K |
| RV401 | 1-228-887-00 | s | METAL 470 |
| RV402 | 1-228-890-00 | s | METAL 4.7K |
| RV403 | 1-228-890-00 | s | METAL 4.7K |
| RV404 | 1-228-890-00 | s | METAL 4.7K |

**PS BLOCK**

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| | | o | PRINTED CIRCUIT BOARD |
| | ⚠1-509-546-11 | s | AC INLET |
| | ⚠9-993-941-01 | s | SWITCH, ROCKER "POWER" |
| | 9-993-942-01 | s | FAN |
| ⚠C101 | 1-136-527-11 | s | FILM 0.47 250V |
| C102 | 1-136-527-11 | s | FILM 0.47 250V |
| C103 | 1-161-741-00 | s | CERAMIC 1000PF 10% 400V |
| C104 | 1-161-741-00 | s | CERAMIC 1000PF 10% 400V |
| C105 | 1-161-741-00 | s | CERAMIC 1000PF 10% 400V |
| C106 | 1-161-741-00 | s | CERAMIC 1000PF 10% 400V |
| C107 | 9-993-923-01 | s | ELECT 560 200V |
| C108 | 9-993-923-01 | s | ELECT 560 200V |
| C109 | 1-130-801-21 | s | FILM 3.3 250V |
| C110 | 1-130-801-21 | s | FILM 3.3 250V |
| C111 | 1-136-203-11 | s | FILM 0.01 630V |
| C112 | 1-127-465-00 | s | ELECT 10 20% 400V |
| C113 | 1-136-203-11 | s | FILM 0.01 630V |
| C114 | 1-162-131-11 | s | CERAMIC 220PF 10% 2KV |
| C115 | 1-162-870-11 | s | CERAMIC 2200PF 10% 1KV |
| C116 | 1-162-870-11 | s | CERAMIC 2200PF 10% 1KV |
| C117 | 1-136-153-00 | s | FILM 0.01 10% 50V |
| C118 | 1-136-161-00 | s | FILM 0.047 10% 50V |
| C119 | 1-136-165-00 | s | FILM 0.1 10% 50V |
| C120 | 1-136-161-00 | s | FILM 0.047 10% 50V |
| C201 | 1-162-134-11 | s | CERAMIC 470PF 10% 2KV |
| C202 | 1-162-134-11 | s | CERAMIC 470PF 10% 2KV |
| C203 | 1-162-870-11 | s | CERAMIC 2200PF 10% 1KV |
| C204 | 1-162-870-11 | s | CERAMIC 2200PF 10% 1KV |
| C205 | 9-987-565-01 | s | ELECT 1000 35V |
| C206 | 9-987-565-01 | s | ELECT 1000 35V |
| C207 | 9-987-565-01 | s | ELECT 1000 35V |
| C208 | 1-123-875-11 | s | ELECT 10 20% 50V |
| C209 | 1-130-479-00 | s | FILM 0.0047 10% 50V |
| C210 | 1-130-479-00 | s | FILM 0.0047 10% 50V |
| C211 | 1-124-124-00 | s | ELECT 220 20% 10V |
| C212 | 1-136-203-11 | s | FILM 0.01 5% 630V |
| C213 | 1-124-510-51 | s | ELECT 220 20% 35V |
| C214 | 1-123-875-11 | s | ELECT 10 20% 50V |
| C215 | 1-124-579-11 | s | ELECT 1000 20% 16V |
| C216 | 1-124-579-11 | s | ELECT 1000 20% 16V |
| C217 | 1-124-602-00 | s | ELECT 2200 20% 35V |
| C218 | 1-124-473-11 | s | ELECT 1000 20% 10V |
| C219 | 1-124-124-00 | s | ELECT 220 20% 10V |
| C220 | 1-130-471-00 | s | FILM 0.001 10% 50V |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| C221 | 1-124-124-00 | s | ELECT 220 20% 10V |
| C222 | 1-136-190-11 | s | FILM 0.15 5% 250V |
| C223 | 1-136-190-11 | s | FILM 0.15 5% 250V |
| C224 | 1-123-875-11 | s | ELECT 10 20% 50V |
| C225 | 1-124-791-11 | s | ELECT 1 20% 50V |
| C226 | 1-136-161-00 | s | FILM 0.047 10% 50V |
| C301 | 1-136-153-00 | s | FILM 0.01 10% 50V |
| C302 | 1-136-165-00 | s | FILM 0.1 10% 50V |
| C303 | 1-124-125-00 | s | FILM 22 20% 25V |
| C304 | 1-130-776-00 | s | FILM 0.47 10% 63V |
| C305 | 1-130-479-00 | s | FILM 0.0047 10% 50V |
| C306 | 1-136-153-00 | s | FILM 0.01 10% 50V |
| C307 | 1-136-153-00 | s | FILM 0.01 10% 50V |
| C308 | 1-136-153-00 | s | FILM 0.01 10% 50V |
| C309 | 1-136-165-00 | s | FILM 0.1 10% 50V |
| C310 | 1-136-165-00 | s | FILM 0.1 10% 50V |
| C311 | 1-136-153-00 | s | FILM 0.01 10% 50V |
| C312 | 1-136-153-00 | s | FILM 0.01 10% 50V |
| CN1 | | o | |
| D101 | 8-719-500-16 | s | D5SB60 |
| D104 | 8-719-924-06 | s | ERC24-06S |
| D105 | 8-719-900-95 | s | V09G |
| D106 | 8-719-815-55 | s | 1S1555 |
| D107 | 8-719-815-55 | s | 1S1555 |
| D201 | 8-719-200-39 | s | C16P20F |
| D202 | 1-806-549-41 | s | ERB43-08 |
| D203 | 1-806-549-41 | s | ERB43-08 |
| D204 | 1-806-549-41 | s | ERB43-08 |
| D206 | 8-719-230-02 | s | 30DF2 |
| D207 | 8-719-982-04 | s | ERB81-004 |
| D208 | 8-719-908-06 | s | ERA81-005 |
| D209 | 9-829-114-58 | s | RD9.1JSB3 |
| D210 | 8-719-933-74 | s | HZS12A2L |
| D301 | 8-719-934-22 | s | HZS30-2L |
| D302 | 8-719-934-26 | s | HZS33-2L |
| D304 | 8-719-815-55 | s | 1S1555 |
| D305 | 8-719-114-36 | s | RD5.6JSB1 |
| D306 | 8-719-114-36 | s | RD5.6JSB1 |
| F101 | 1-532-598-00 | s | 125V 4A (UC) |
| | 1-532-350-00 | s | 250V 4A (EK) |
| | 9-987-625-01 | o | HOLDER, FUSE |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| IC201 | 8-759-701-60 | s | NJM78M12FA: JRC |
| IC202 | 8-759-604-40 | s | M5F78M15: MITSUBISHI |
| IC203 | 8-759-701-65 | s | NJM79M05FA: JRC |
| IC204 | 8-759-701-56 | s | NJM78M05FA: JRC |
| IC205 | 8-759-602-78 | s | M5236L: MITSUBISHI |
| IC206 | 8-759-007-33 | s | L5431: SANYO |
| IC301 | 8-759-937-59 | s | MB3759: FUJITSU |
| IC302 | 8-759-906-01 | s | TL601CP: TI |
| IC303 | 8-759-700-42 | s | NJM2904D: JRC |
| ⚠L101 | 9-993-935-01 | s | |
| L102 | 9-993-935-01 | s | |
| L201 | 9-993-939-01 | s | |
| L202 | 9-993-940-01 | s | |
| ⚠PC101 | 8-719-802-22 | s | TLP581-Y |
| PC301 | 8-719-902-56 | s | PC817 |
| Q101 | 9-987-569-01 | s | 2SK386 |
| Q102 | 9-987-569-01 | s | 2SK386 |
| Q103 | 9-993-918-01 | s | 2SC3909 |
| Q104 | 8-729-266-52 | s | 2SC2655 |
| Q201 | 8-729-266-52 | s | 2SC2655 |
| Q202 | 8-729-266-52 | s | 2SC2655 |
| Q203 | 8-729-283-41 | s | 2SB834-O |
| Q301 | 8-729-201-52 | s | 2SA1015 |
| Q302 | 8-729-201-52 | s | 2SA1015 |
| Q303 | 8-729-281-52 | s | 2SC1815-Y |
| Q304 | 8-729-201-52 | s | 2SA1015 |
| R101 | 9-993-934-01 | s | THERMISTOR 5D-11 |
| R102 | 9-993-934-01 | s | THERMISTOR 5D-11 |
| R103 | 9-993-934-01 | s | THERMISTOR 5D-11 |
| R104 | 9-993-934-01 | s | THERMISTOR 5D-11 |
| R105 | 1-213-127-00 | s | METAL 2.2K 5% 1W |
| R106 | 1-213-127-00 | s | METAL 2.2K 5% 1W |
| R107 | 1-206-597-00 | s | METAL 2.7 5% 7W |
| R108 | 1-206-597-00 | s | METAL 2.7 5% 7W |
| R109 | 1-213-364-11 | s | METAL 4.3M 5% 1W |
| R110 | 1-214-475-00 | s | METAL 68K 5% 2W |
| R111 | 1-217-570-00 | s | METAL 2.2 10% 5W |
| R112 | 1-214-927-00 | s | CARBON 390K 1% 1/2W |
| R113 | 1-206-479-00 | s | METAL 47 5% 2W |
| R114 | 1-215-885-00 | s | METAL 68 5% 2W |
| R115 | 1-215-865-11 | s | METAL 220 5% 1W |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| R116 | 1-215-865-11 | s | METAL 220 5% 1W |
| R117 | 9-987-558-01 | s | CEMENT 100 5W |
| R118 | 1-249-415-11 | s | CARBON 680 5% 1/4W |
| R119 | 1-249-412-11 | s | CARBON 390 5% 1/4W |
| R120 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R201 | 1-206-640-00 | s | METAL 100 5% 2W |
| R202 | 1-206-640-00 | s | METAL 100 5% 2W |
| R204 | 1-249-423-11 | s | CARBON 3.3K 5% 1/4W |
| R205 | 1-249-423-11 | s | CARBON 3.3K 5% 1/4W |
| R206 | 1-249-407-11 | s | CARBON 150 5% 1/4W |
| R207 | 1-249-407-11 | s | CARBON 150 5% 1/4W |
| R208 | 1-247-749-11 | s | CARBON 560 5% 1/2W |
| R209 | 1-247-749-11 | s | CARBON 560 5% 1/2W |
| R210 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R211 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R212 | 1-249-423-11 | s | CARBON 3.3K 5% 1/4W |
| R213 | 1-249-431-11 | s | CARBON 15K 5% 1/4W |
| R214 | 1-249-432-11 | s | CARBON 18K 5% 1/4W |
| R215 | 1-249-399-11 | s | CARBON 33 5% 1/4W |
| R216 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R217 | 1-213-147-00 | s | METAL 2.2K 5% 1W |
| R218 | 1-249-422-11 | s | CARBON 2.7K 5% 1/4W |
| R219 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R220 | 1-249-402-11 | s | CARBON 56 5% 1/4W |
| R301 | 1-247-854-11 | s | CARBON 9.1K 5% 1/4W |
| R302 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R303 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R304 | 1-249-433-11 | s | CARBON 22K 55 1/4W |
| R305 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R306 | 1-249-409-11 | s | CARBON 220 5% 1/4W |
| R307 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R308 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| R309 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R310 | 1-249-433-11 | s | CARBON 22K 5% 1/4W |
| R311 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R312 | 1-249-897-11 | s | CARBON 560K 5% 1/4W |
| R313 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R314 | 1-249-411-11 | s | CARBON 330 5% 1/4W |
| R315 | 1-249-415-11 | s | CARBON 680 5% 1/4W |
| R316 | 1-249-426-11 | s | CARBON 5.6K 5% 1/4W |
| R317 | 1-249-426-11 | s | CARBON 5.6K 5% 1/4W |
| R318 | 1-249-405-11 | s | CARBON 100 5% 1/4W |
| R319 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| R320 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R321 | 1-247-704-11 | s | CARBON 220 5% 1/4W |
| R322 | 1-247-704-11 | s | CARBON 220 5% 1/4W |
| R323 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R324 | 1-249-417-11 | s | CARBON 1K 5% 1/4W |
| R325 | 1-247-854-11 | s | CARBON 9.1K 5% 1/4W |
| R326 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| R327 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R328 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R329 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R330 | | s | 10K |
| R331 | 1-249-421-11 | s | CARBON 2.2K 5% 1/4W |
| R332 | 1-249-427-11 | s | CARBON 6.8K 5% 1/4W |
| R333 | 1-249-422-11 | s | CARBON 2.7K 5% 1/4W |
| R334 | 1-249-413-11 | s | CARBON 470 5% 1/4W |
| R335 | 1-249-422-11 | s | CARBON 2.7K 5% 1/4W |
| R336 | 1-247-893-11 | s | CARBON 390K 5% 1/4W |
| R337 | 1-247-893-11 | s | CARBON 390K 5% 1/4W |
| R338 | 1-247-858-11 | s | CARBON 13K 5% 1/4W |
| R339 | 1-249-429-11 | s | CARBON 10K 5% 1/4W |
| R340 | 1-249-434-11 | s | CARBON 27K 5% 1/4W |
| R341 | 1-249-441-11 | s | CARBON 100K 5% 1/4W |
| R342 | 1-249-441-11 | s | CARBON 100K 5% 1/4W |
| RV201 | 9-993-931-01 | s | 5K |
| RV202 | 9-993-933-01 | s | 1K |
| RV301 | 9-993-933-01 | s | 1K |
| RV302 | 9-993-932-01 | s | 2K |
| RV303 | 9-993-933-01 | s | 1K |
| SCR201 | 8-719-108-18 | s | 5P6M |
| SCR301 | 8-719-107-87 | s | 03P2M |
| ⚠T101 | 9-933-936-01 | s | SWITCHING |
| T102 | 9-933-937-01 | s | SWITCHING |
| T103 | 9-933-938-01 | s | SWITCHING |
| T104 | 9-933-938-01 | s | SWITCHING |

| Ref.No. | Parts No. | SP | Description |
|---|---|---|---|
| **FRAME** | | | |
| | ⚠1-413-351-11 | s | PS BLOCK (UC) |
| | 1-413-351-21 | s | PS BLOCK (EK) |
| CN101 | 1-562-245-11 | o | RECEPTACLE, 26P FEMALE "CAMERA" |
| CN102 | 1-509-176-51 | s | RECEPTACLE, 3P FEMALE "MIC" |
| CN103 | 1-526-531-00 | s | RECEPTACLE, 4P FEMALE "TALLY/INTERCAM" |
| CN104 | 1-562-782-21 | s | RECEPTACLE, 10P FEMALE "REMOTE" |
| CN105 | 1-537-047-11 | o | TERMINAL BOARD, FEED-THROUGH |
| CN106 | 1-564-808-11 | o | PLUG 4P |
| CN107 | 1-564-809-11 | o | PLUG 6P |
| S101 | 1-571-411-11 | s | ROTARY "CABLE COMP" |